



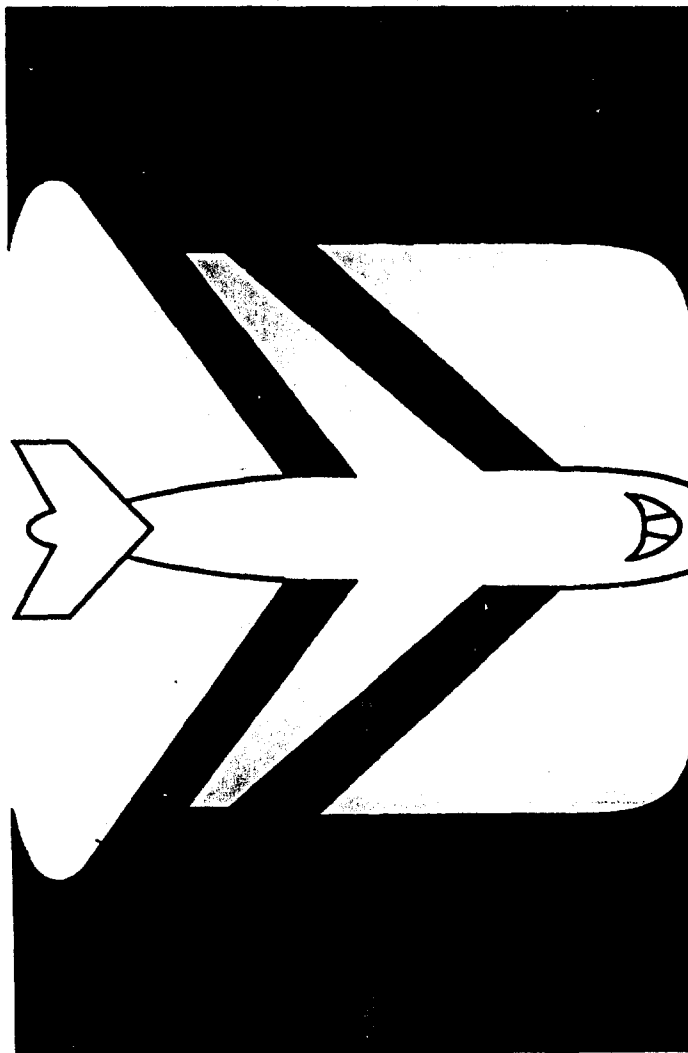
U.S. Department  
of Transportation  
Federal Aviation  
Administration

# General Aviation Activity and Avionics Survey

AD-A270 494



Calendar Year 1990



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# General Aviation Activity and Avionics Survey

Calendar Year 1990

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Airport Activity Statistics of Certificated Route Air Carriers is a joint publication of the Federal Aviation Administration (FAA) and the Research and Special Programs Administration (RSPA). RSPA furnishes airport activity data on certificated route air carriers; FAA organizes/publishes it. Included in the data are passenger enplanements and tons of enplaned freight, express and mail. Scheduled/nonscheduled service shown by airport and carrier are also included. Breakdown of data includes departures/enplanements/cargo/mail by airport, carrier and type of operation, and type of aircraft.

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Census of U.S. Civil Aircraft is an annual publication that includes statistical data on the registered civil fleet, air carrier aircraft, and general aviation aircraft--both registered and active, detailed reports for general aviation aircraft by owner's state and county, and registered aircraft by make and model.

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FAA Air Traffic Activity furnishes terminal and en route air traffic activity information (e.g., takeoffs and landings, flight plans filed) of the National Airspace System. The data are collected/compiled from the FAA-operated Airport Traffic Control Towers, Air Route Traffic Control Centers, Flight Service Stations, Approach Control Facilities, and FAA contract-towered airports.

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FAA Organizational Directory is published annually. It contains six sections of data: Washington/Region/Center headquarters' managers; field facilities' managers/supervisors; regional area maps/organizational charts; alphabetical listing; special interest groups; and glossary.

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Person to contact:	Vernell Staton

FAA Statistical Handbook of Aviation is a convenient source for historical data. It presents statistical information pertaining to the Federal Aviation Administration; the National Airspace System; Airports; Airport Activity; U.S. Civil Air Carrier Fleet; U.S. Civil Air Carrier Operating Data; Airmen; General Aviation Aircraft; Aircraft Accidents; Aeronautical Production and Import/Export.

Latest edition:	Calendar Year 1989
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Date next publication is scheduled:	December 1991 (1990 data)
Person to contact:	Patricia Beardsley

General Aviation Activity and Avionics Survey is an annual report that presents the results of the general aviation activity and avionics survey conducted to obtain information on the activity and avionics of the U.S. registered general aviation aircraft fleet. The report contains estimated flying time, landings, fuel consumption, lifetime airframe hours, avionics, and engine hours of the active general aviation aircraft by manufacturer/model group, aircraft type, state and region of based aircraft, and primary use.

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General Aviation Pilot and Aircraft Activity Survey includes data on the type and source of aircraft flight plan and weather information services, trip length in time and distance, pilot age and certification, estimates of total 1989 general aviation operations, fuel consumption and aircraft miles flown. The survey was conducted from June through September 1990 by the Federal Aviation Administration with the assistance of the Civil Air Patrol.

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Person to contact:	Shung-Chai Huang

Rotorcraft Activity Survey presents the results of a special one-time survey. The report contains breakdowns of active rotorcraft, annual flight hours, average flight hours, and other statistics by rotorcraft type, manufacturer/model group, region and state of based aircraft, lifetime airframe hours, engine hours, estimated miles flown, and estimated number of landings.

Edition:	Calendar Year 1989
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## PREFACE

This report presents the results of the 1990 General Aviation Activity and Avionics (GAAA) Survey. It is prepared by the Statistical Analysis Branch, Management Standards and Statistics Division, Office of Management Systems (AMS-420).

The report is divided into eight, easy-to-read chapters. Each chapter contains its corresponding tables and figures, which follow each chapter's text. The figures are presented first, with the tables following the figures.

The outline of this report is as follows:

Chapter I, Introduction, briefly discusses the purpose, background and scope of the General Aviation Activity and Avionics Survey Report. It also highlights the important findings of the survey.

Chapter II, Common General Aviation Activity Measures, presents information on the general aviation population size, the number of active aircraft, total hours flown and average hours flown. Statistics on another measurement of general aviation activity, number of landings, are also given by total, local flight and cross country flight.

Chapter III, Primary Use, looks at the growth in the number of active aircraft and in the total number of hours flown by the general aviation fleet. The major uses of the general aviation aircraft and the number of nautical miles flown by primary use are also looked at in detail.

Chapter IV, Flying Conditions, presents statistics on the conditions under which the general aviation population flies. Detailed statistics on the number of hours flown under Visual Meteorological Conditions (VMC) and Instrument Meteorological Conditions (IMC) during day and night are given.

Chapter V, Fuel Consumption, gives information on the types of fuel consumed, the amount used, and average fuel consumption by the general aviation fleet.

Chapter VI, Airframe Hours and Engine Activity, provides data on the age of the general aviation fleet--average airframe hours per active aircraft and the number of engines and average hours per engine.

Chapter VII, Avionics, presents various figures and tables on selected capabilities of the general aviation aircraft fleet.

Chapter VIII, National Airspace System (NAS) Capability Groups Based on Avionics, provides numerous figures and tables on aircraft avionic capabilities by the two classifications of capability groups, hierarchical and nonhierarchical. These two groups were developed to provide a framework for relating airborne avionics equipment (discussed in Chapter VII, Avionics) to aircraft capability to perform in the NAS.

Appendix A, Methodology for the 1990 General Aviation Activity and Avionics Survey, provides a detailed description of the GAAA Survey, its history, and the survey sample design. Also included are a definition and explanation of "standard error," a statistical measure reported in each table.

Appendix B and Appendix C list SDR aircraft group name and FAA Manufacturer/Model Codes, and Service Difficulty Reporting (SDR) Engine Group Name and FAA Manufacturer/Model Codes, respectively. Appendix D contains a list of common acronyms, as well as a glossary of aviation terms found in this report.

Suggestions and comments about this report are welcome and will be given careful consideration in planning future editions.

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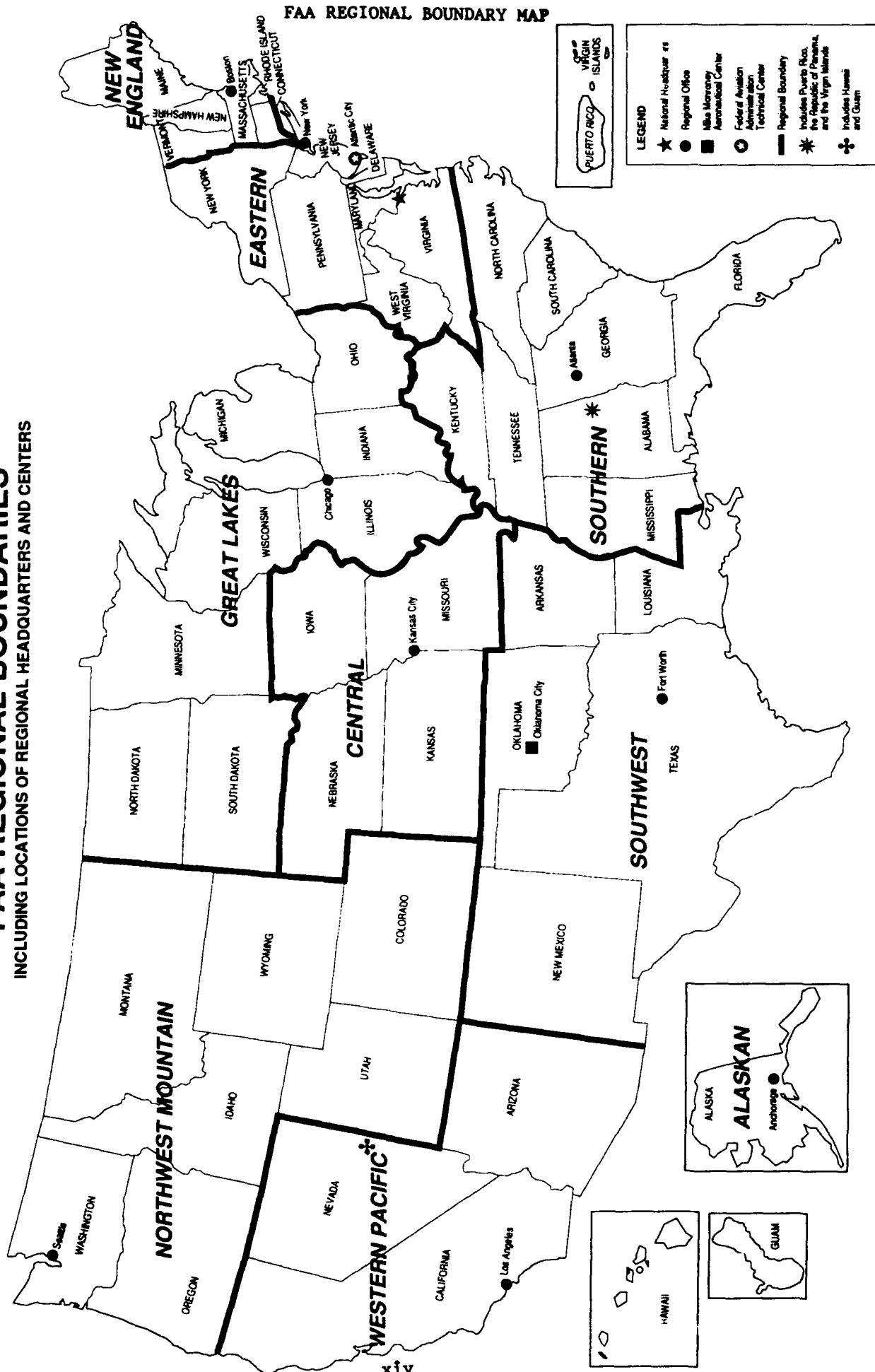
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U.S. DEPARTMENT OF TRANSPORTATION  
FEDERAL AVIATION ADMINISTRATION

# FAA REGIONAL BOUNDARIES

INCLUDING LOCATIONS OF REGIONAL HEADQUARTERS AND CENTERS



## CHAPTER I

### INTRODUCTION

This report presents the results of the annual General Aviation Activity and Avionics (GAAA) Survey. The GAAA Survey provides information about the activities and avionics equipment of the general aviation aircraft fleet. The information obtained from the GAAA Survey enables the FAA to monitor the general aviation fleet so that FAA can, among other activities, anticipate and meet demand for National Airspace System (NAS) facilities and services, assess the impact of regulatory changes on the general aviation fleet, and implement measures to assure the safe operation of all aircraft in the airspace.

The term "general aviation" is not always defined in the same way from aviation publication to aviation publication. For the purposes of the GAAA Survey, the term "general aviation" excludes what is commonly known as the "airlines." The general aviation aircraft represented in this report, then, range in complexity from simple gliders and balloons to the more sophisticated four engine turbojets. These aircraft are used for a variety of purposes such as air taxi, agricultural, executive/business, personal, research, instructional, recreational, and even sport fishing--to name a few.

Each year, the information for the GAAA Survey is collected using a statistically designed sample survey. The sampled aircraft represent every state and FAA region and all of the major manufacturer/model groups of aircraft. Appendix A of this report provides a detailed description of the GAAA Survey, its history, and the survey sample design.

Following are some of the significant GAAA Survey findings for 1990:

#### GENERAL:

- o The estimated 212,229 active general aviation aircraft in the fleet flew almost 35 million hours in 1990, with an average annual flight time per aircraft of 159 hours. These active aircraft represent approximately 80 percent of the registered general aviation fleet.
- o From 1989 to 1990, the number of active aircraft in the general aviation fleet decreased 3.4 percent, and flying time decreased less than one percent. The average hours flown per aircraft increased approximately 3.1 percent over 1989's comparable figures.
- o The general aviation active aircraft undertook more than 106 million operations (takeoffs and landings). About 72 percent were in local versus cross country flight.
- o The general aviation aircraft fleet flew almost 4.2 billion nautical miles during 1990.

- o Approximately 75 percent of the total hours were flown in visual meteorological conditions (VMC) during the day, and 13 percent VMC during the night. Total hours flown under instrument meteorological conditions (IMC) during the day were 8 percent, while IMC flight during the night accounted for 4 percent of the total hours flown.
- o An estimated 1.02 billion gallons of fuel were consumed by the active general aviation fleet during 1990. Approximately 35 percent of the total fuel consumed during 1990 was aviation gasoline, and 65 percent was jet fuel.
- o Almost 43 percent of the 1990 active general aviation fleet flew by instrument flight rules (IFR).

#### GEOGRAPHIC:

- o The three regions with the greatest number of active aircraft are: the Western-Pacific and the Great Lakes regions, both with 17.6 percent, and the Southern region with 16.6 percent. The region with the smallest number of active aircraft is the Alaskan Region, which constitutes 3.3 percent of the active general aviation fleet.
- o States represented by the largest number of registered general aviation aircraft include California with 14 percent, Texas with 8 percent, and Florida with 6 percent.

#### AIRCRAFT TYPE AND PRIMARY USE:

- o Turboprop, turbojet and rotorcraft aircraft types averaged 424, 353, and 321 flight hours per aircraft, respectively. In contrast, active fixed wing piston aircraft, which make up more than 88 percent of the active fleet and represent 80 percent of the total flight time, averaged only 148 flight hours per aircraft.
- o Twin engine turboprops with 13 or more seats had the most average hours flown per aircraft, 1,024. The aircraft types with the least number of average hours flown were the single engine piston with 4 or more seats, averaging 141 hours, and aircraft types in the "other" category (e.g., gliders and balloons), which accounted for 52 average hours flown per aircraft.
- o The most popular primary use category of the active general aviation aircraft is personal use, with more than 57 percent of the active fleet falling into this category. The next closest primary use category is business, with 17 percent, followed by instructional use with 9 percent.

#### AVIONICS:

- o The majority of the general aviation fleet has at least one component of an instrument landing system, such as a localizer, marker beacon, or glide slope.
- o The percent of the general aviation fleet with two-way VHF communication equipment and transponder equipment is 82 and 70 percent, respectively.
- o Approximately 78 percent of the general aviation aircraft have some form of navigation equipment, such as VOR navigation equipment, long range navigation equipment or some other type of navigation equipment.
- o The percent of the general aviation fleet with guidance and control equipment was 31 percent in 1990.



## CHAPTER II

### COMMON GENERAL AVIATION ACTIVITY MEASURES

Several aviation activity measures are used to indicate growth trends and activity levels in the general aviation fleet. Some common aviation activity measures of interest are the size of the general aviation population, the number of active aircraft, the total flight hours, average flight hours per aircraft, and number of landings.

This chapter presents seven tables and three figures on these common aviation activity measures. The first four tables, Tables 2.1-2.4, give estimates of the general aviation population size, number of active aircraft, total flight hours and average flight hours in four different ways, by: 1) Aircraft Type, 2) Service Difficulty Reporting (SDR) Aircraft Manufacturer/Model Group, 3) Region of Based Aircraft, and 4) State of Based Aircraft.

Table 2.2 breaks down the number of estimated active aircraft and their respective average hours flown figures by Service Difficulty Reporting (SDR) aircraft manufacturer/model group. Appendix B lists these SDR aircraft group names and FAA manufacturer/model codes. The 13 "Other" categories listed in the beginning of Table 2.2 refer to all the general aviation aircraft which belong to a manufacturer/model group which has fewer than 20 aircraft. The different "other" categories stand for:

- 1 Fixed Wing Piston, 1 Engine, 1-3 Seats.
- 2 Fixed Wing Piston, 1 Engine, 4+ Seats.
- 3 Fixed Wing Piston, 2 Engine, 1-6 Seats.
- 4 Fixed Wing Piston, 2 Engine, 7+ Seats.
- 5 Fixed Wing Piston, Other.
- 6 Fixed Wing Turboprop, 2 Engines, 1-12 Seats.
- 7 Fixed Wing Turboprop, 2 Engines, 13+ Seats.
- 8 Fixed Wing Turboprop, Other.
- 9 Fixed Wing Turbojet, 2 Engines.
- 10 Fixed Wing Turbojet, Other.
- 11 Rotorcraft, Piston.
- 12 Rotorcraft, Turbine.
- 13 Other Aircraft.

Tables 2.5-2.7 contain data on the number of aircraft landings by the general aviation population. Estimates of the total number of landings, the number of landings in local flight and the number of landings in cross country flight by aircraft type and by region of based aircraft are provided.

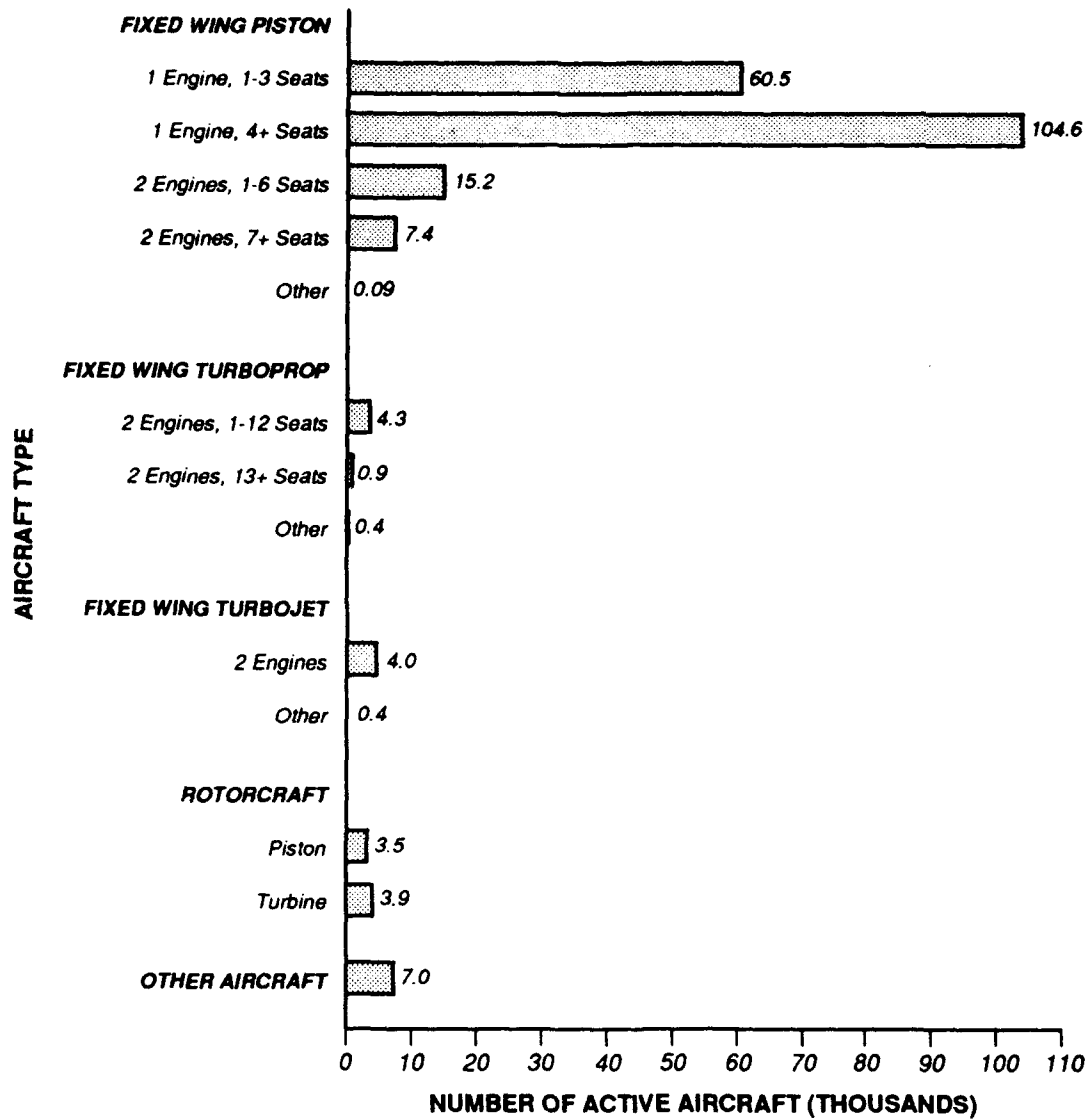
To visualize the data presented in Tables 2.1-2.7, three figures are included. Figures 2.1, 2.2 and 2.3 show, by aircraft type, the number of general aviation active aircraft, total flight hours, and number of landings, respectively.

Some observations derived from these tables are:

- o Among all types of general aviation aircraft, there was a great deal of variation in the total hours, number of active aircraft, and average hours.
- o On a national level, the results of the 1990 General Aviation Activity and Avionics survey revealed that almost 35 million hours were flown by the estimated 212,229 active general aviation aircraft in the 1990 general aviation fleet.
- o The average flight time per active aircraft in the 1990 general aviation fleet was 159 hours. Active aircraft constituted about 80 percent of the registered general aviation fleet.
- o The statistics for 1990 showed a 3.4 percent decrease in the number of active aircraft in the general aviation fleet, a less than one percent or 248,300 hours decrease in flying time, and a 3.1 percent increase in the average hours flown per aircraft versus 1989's comparable figures.
- o Single engine piston aircraft, with a population of 207,384 or 78 percent of the registered general aviation fleet, dominated the active fleet. This aircraft type accounted for 78 percent of the active aircraft but only 68 percent of the total flight time.
- o Fixed wing turboprops with 13 or more seats averaged the most hours per aircraft, with 1,024 average hours. This is attributable to their heavy commercial use as commuter air carriers.
- o The percentages of active aircraft in each region versus the total number of registered aircraft in each region are relatively close together, ranging from a low of 76 percent in the Alaskan Region to a high of 85 percent in the New England Region.
- o The three regions with the greatest number of active aircraft are: the Western-Pacific with 37,353; the Great Lakes with 37,311; and the Southern with 35,193.
- o In four regions, flight time increased compared to 1989 estimates, increases ranging from 2 percent in the Eastern region to 14 percent in the Northwest Mountain region. The New England, Central, Southwestern, Southern, and Great Lakes regions showed decreases of 15, 14, 13, 5, and 0.4 percent, respectively. The Western-Pacific region accounted for the most flight time, with the Southern, Great Lakes, and Southwestern regions close behind.
- o The state with the largest estimated number of active aircraft is California with 29,316 active aircraft. The next two states are Texas with 16,656 and Florida with 13,290 active aircraft.

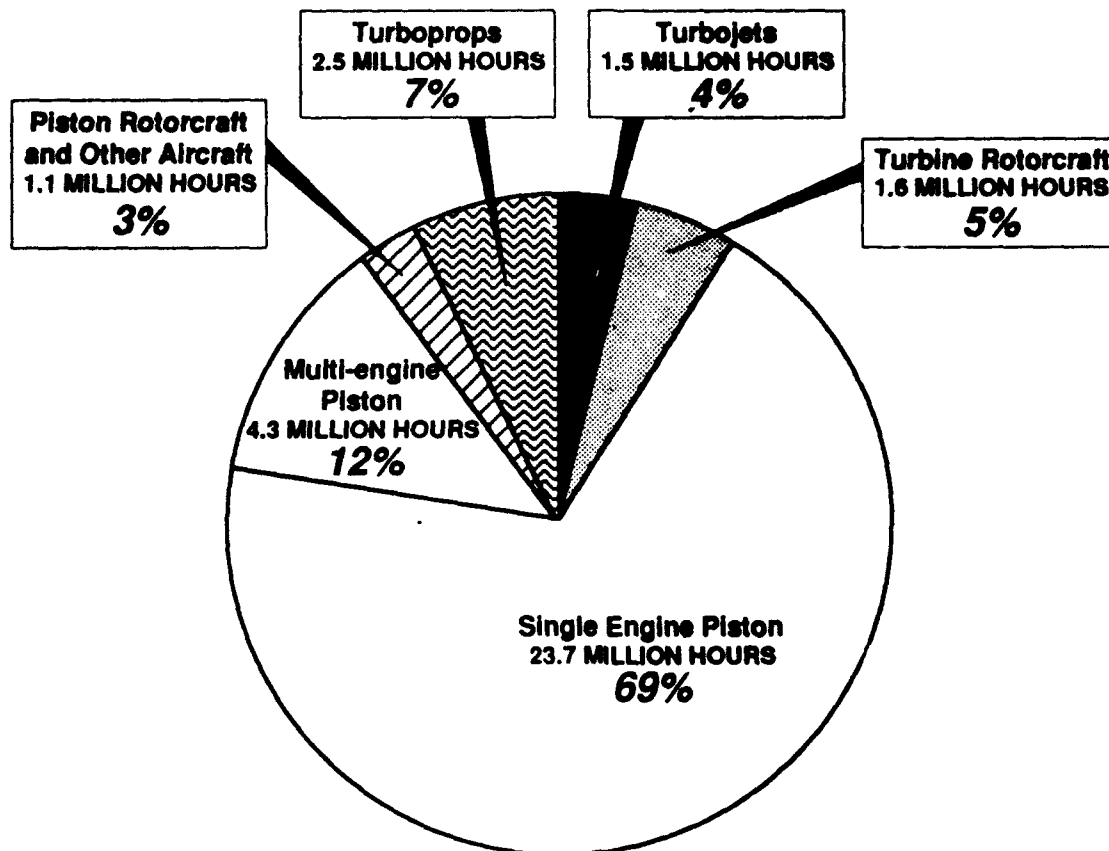
- o The state with the highest estimated average flight hours is Hawaii with 441.6 hours. Other U.S. territories, which include Guam, American Samoa, and the Virgin Islands, had slightly higher average flight hours, 458.1. New Hampshire averaged the lowest flight hours, 88.9.
- o During 1990, the general aviation fleet made almost 53 million landings. In terms of the number of landings per hour, this represents a slight increase over previous years.
- o Single engine piston aircraft made the most landings, 38 million, with 76 percent of the landings in local versus cross country flight.
- o Turbojets and turboprops, which are used primarily for long, cross country flying, made 94 percent and 75 percent, respectively, of their landings in cross country versus local flight.

**Figure 2.1**  
**1990 GENERAL AVIATION ACTIVE AIRCRAFT**  
**BY AIRCRAFT TYPE**



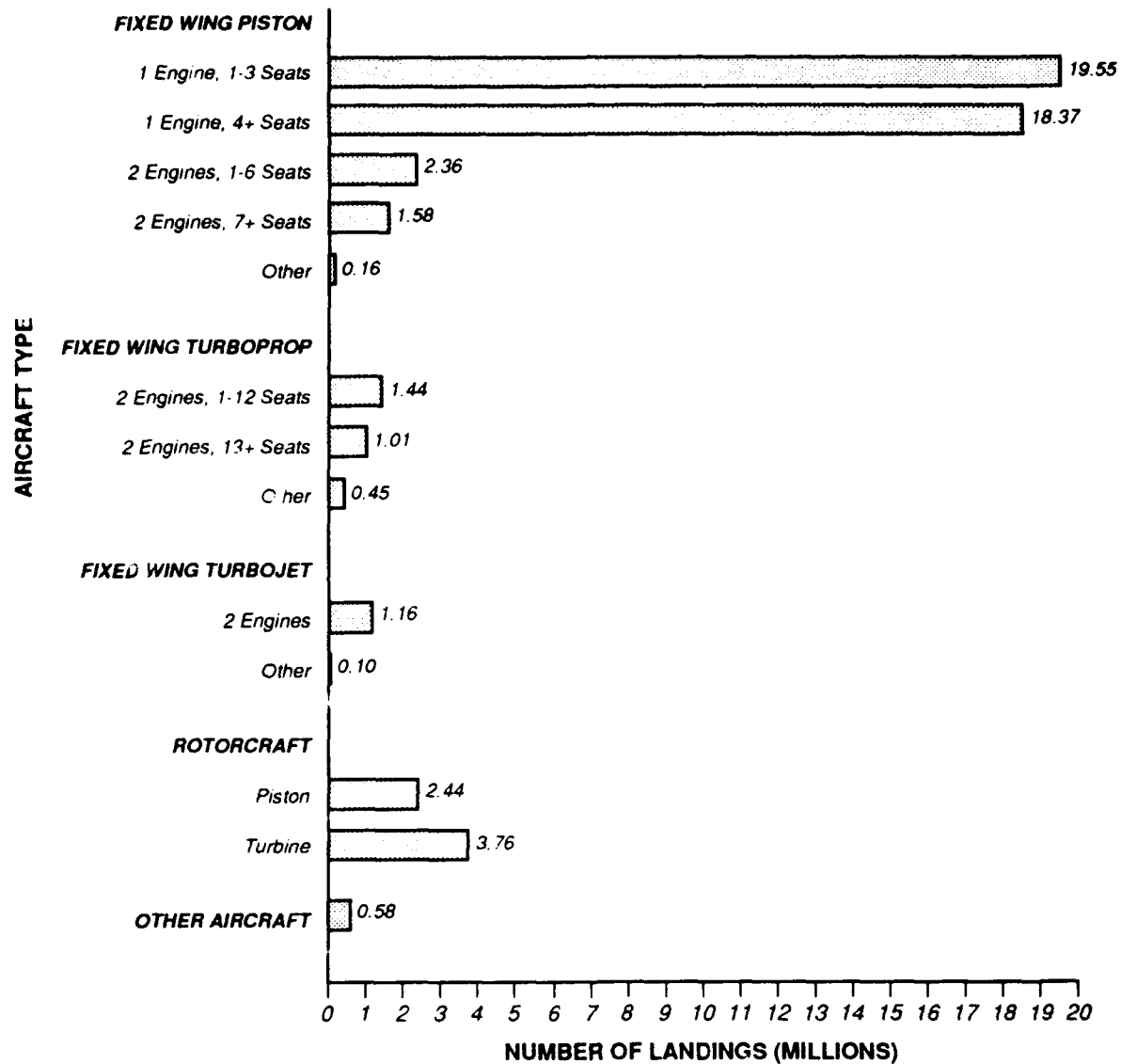
**SOURCE:** Table 2.1

**Figure 2.2**  
**1990 GENERAL AVIATION TOTAL FLIGHT HOURS**  
**BY AIRCRAFT TYPE**



**SOURCE: Table 2.1**

**Figure 2.3**  
**1990 GENERAL AVIATION LANDINGS**  
**BY AIRCRAFT TYPE**



**SOURCE: Table 2.5**

2.1 1990 GENERAL AVIATION POPULATION SIZE, ACTIVE AIRCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS  
BY AIRCRAFT TYPE

PAGE 1 OF 2

AIRCRAFT TYPE	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL HOURS FLOWN	PERCENT STANDARD ERROR	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
FIXED WING									
FIXED WING - PISTON									
1 ENG: 1-3 SEATS	88,005	60,507	1.3	68.8	0.9	9,000,816	3.9	148.7	3.9
1 ENG: 4+ SEATS	119,379	104,566	0.6	87.6	0.6	14,695,770	2.7	140.8	2.6
1 ENGINE: TOTAL	207,384	165,073	0.6	79.6	0.5	23,696,582	2.2	143.6	2.2
2 ENG: 1-6 SEATS	17,600	15,186	1.6	86.3	1.4	2,485,417	4.7	163.1	4.6
2 ENG: 7+ SEATS	8,892	7,421	2.4	83.5	2.0	1,734,110	6.5	230.5	6.1
2 ENGINE: TOTAL	26,492	22,606	1.3	85.3	1.1	4,219,527	3.8	182.3	3.7
PISTON: OTHER	182	94	29.8	51.6	15.4	56,706	48.7	623.0	30.6
PISTON: TOTAL	234,058	187,773	0.6	80.2	0.5	27,972,818	2.0	147.9	1.9
FIXED WING - TURBOPROP									
2 ENG: 1-12 SEATS	4,623	4,320	1.6	93.4	1.5	1,458,092	6.6	333.8	5.6
2 ENG: 13+ SEATS	1,289	937	6.9	72.7	5.0	892,939	14.1	1023.8	8.3
2 ENGINE: TOTAL	5,912	5,257	1.8	88.9	1.6	2,351,031	6.7	422.0	4.6
TURBOPROP: OTHER	499	395	7.1	79.2	5.6	170,250	10.9	445.8	8.3
TURBOPROP: TOTAL	6,411	5,652	1.7	88.2	1.5	2,521,281	6.3	423.7	4.3

2.1 1990 GENERAL AVIATION POPULATION SIZE, ACTIVE AIRCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS  
BY AIRCRAFT TYPE

PAGE 2 OF 2

AIRCRAFT TYPE	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL HOURS FLOWN	PERCENT STANDARD ERROR	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
FIXED WING - TURBOJET									
2 ENGINE: TOTAL	4,305	3,950	2.0	91.8	1.8	1,384,788	4.3	358.9	4.0
TURBOJET: OTHER	586	425	8.2	72.5	6.0	126,772	12.2	292.9	10.8
TURBOJET: TOTAL	4,891	4,374	2.0	89.4	1.8	1,511,560	4.1	352.6	3.7
FIXED WING: TOTAL	245,360	197,800	0.5	80.6	0.4	32,005,652	1.8	157.9	1.8
ROTORCRAFT									
PISTON	5,802	3,459	5.3	59.6	3.1	774,774	10.2	216.4	8.9
TURBINE	4,620	3,938	3.1	85.2	2.7	1,617,292	7.2	424.9	6.9
ROTORCRAFT: TOTAL	10,422	7,397	3.0	71.0	2.1	2,392,067	5.9	320.7	5.5
OTHER AIRCRAFT	10,562	7,032	3.0	66.6	2.0	368,804	7.0	52.2	6.8
TOTAL	266,344	212,229	0.5	79.7	0.4	34,766,528	1.7	159.3	1.7

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.



2.2 1990 GENERAL AVIATION POPULATION SIZE, ACTIVE AIRCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS  
BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

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SDR MANUFACTURER/ MODEL GROUP	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL HOURS FLOWN	PERCENT STANDARD ERROR	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
OTHER 1	18,487	9,583	5.4	51.8	2.8	654,229	12.5	68.3	11.3
OTHER 2	1,937	1,221	9.6	63.1	6.0	154,353	19.6	126.4	17.2
OTHER 3	308	123	33.4	39.9	13.3	17,452	96.4	142.0	90.5
OTHER 4	249	118	37.3	47.4	17.7	15,869	53.2	134.4	37.9
OTHER 5	123	69	39.5	56.4	22.3	54,558	50.6	787.0	31.6
OTHER 6	441	396	7.9	89.8	7.1	226,893	33.7	572.9	32.7
OTHER 7	277	182	25.4	65.7	16.6	206,847	45.1	1,137.2	37.3
OTHER 8	203	109	24.5	53.9	13.2	27,347	35.6	250.1	25.8
OTHER 9	425	335	12.3	78.9	9.7	106,360	20.6	317.3	16.5
OTHER 10	307	196	16.7	63.8	10.7	38,621	34.0	197.3	29.6
OTHER 11	1,942	893	13.5	46.0	6.2	31,338	42.3	35.1	40.1
OTHER 12	285	223	14.5	78.2	11.4	149,537	40.7	670.6	38.1
OTHER 13	3,667	2,226	7.1	60.7	4.3	119,839	17.6	53.8	16.1
ADAMS A50S	137	88	19.2	64.5	12.4	1,822	24.5	20.6	15.2
AERORSJ2	34	14	35.5	41.5	14.7	462	51.5	32.8	37.4
AEROSPAS355	107	103	12.7	96.0	12.1	8,770	53.1	85.4	51.5
AEROSPSA316	78	78	0.0	100.0	0.0	31,480	15.4	403.6	15.4
AEROSPSA365	28	28	0.0	100.0	0.0	9,097	13.6	324.9	13.6
AGUSTA205	27	22	24.4	80.0	19.5	8,014	70.5	371.0	66.1
AGUSTAA109	54	54	0.0	100.0	0.0	8,245	25.4	152.7	25.4
AIRPTSA	208	126	8.5	60.5	5.2	18,457	29.6	146.7	28.3

2.2 1990 GENERAL AVIATION POPULATION SIZE, ACTIVE AIRCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS  
BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

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SDR MANUFACTURER/ MODEL GROUP	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL HOURS FLOWN	PERCENT STANDARD ERROR	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
AIRSPC18	18	14	14.4	75.0	10.8	736	25.1	54.5	20.5
AIRTRCAT300	429	403	7.0	94.0	6.5	168,502	12.8	417.9	10.7
AIRTRCAT400	116	111	6.2	95.5	5.9	61,173	20.3	552.0	19.4
AIRTRCAT500	75	73	7.0	97.1	6.8	30,629	16.8	420.4	15.3
AMD FALC10	110	110	0.0	100.0	0.0	41,117	9.1	373.8	9.1
AMD FALC20	187	169	8.0	90.6	7.2	67,635	16.5	399.2	14.5
AMD FALC50	128	113	9.2	88.6	8.1	50,211	13.5	442.8	9.9
AMTR TMK	21	0	0.0	0.0	0.0	0	0.0	0.0	0.0
ARCNEH37	45	0	0.0	0.0	0.0	0	0.0	0.0	0.0
ARCTCS1A	89	31	26.4	34.6	9.1	1,418	38.0	46.0	27.3
ARCTCS1B1	26	11	27.1	44.0	11.9	335	32.2	29.3	17.5
ARONCA15	199	109	15.1	55.0	8.3	5,873	28.0	53.7	23.7
ARONCA58	149	90	12.1	60.1	7.3	4,360	19.4	48.7	15.1
ARONCA65	143	90	10.4	62.8	6.6	4,318	21.3	48.1	18.5
ARONCAC3	56	14	36.8	24.7	9.1	62	45.2	4.4	26.2
AVIANWFALCON	23	6	107.4	25.0	26.8	158	108.6	27.4	16.2
AVIANWSKYHWK	46	36	16.8	77.6	13.1	896	27.9	25.1	22.3
AYRES S2	832	676	10.1	81.2	8.2	267,460	16.2	395.0	12.8
BAG B206	24	21	23.1	89.1	20.6	1,429	36.7	66.8	28.5
BAG DH125	72	71	3.0	98.2	3.0	27,991	8.9	396.0	8.3
BALWMSFIREFY	1,776	1,381	7.6	77.8	5.9	45,916	16.4	33.2	14.5

2.2 1990 GENERAL AVIATION POPULATION SIZE, ACTIVE AIRCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS  
BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

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SDR MANUFACTURER/ MODEL GROUP	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL HOURS FLOWN	PERCENT STANDARD ERROR	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
BBAVIA11	829	397	16.7	47.9	8.0	17,361	21.8	43.8	14.0
BBAVIA7	3,542	2,041	9.1	57.6	5.2	119,241	14.8	58.4	11.6
BBAVIA8	224	199	5.0	88.6	4.4	35,010	23.8	176.4	23.3
BEECH 100	226	222	3.7	98.1	3.6	64,988	16.1	293.1	15.7
BEECH 17	201	131	21.7	65.0	14.1	8,532	30.6	65.3	21.5
BEECH 18	793	593	12.0	74.7	8.9	101,424	35.0	169.8	32.7
BEECH 1900	143	128	19.1	89.8	17.2	290,967	20.8	2,265.7	8.3
BEECH 200	804	804	0.0	100.0	0.0	335,503	13.3	417.3	13.3
BEECH 23	2,680	2,509	2.7	93.6	2.6	274,638	11.6	109.5	11.3
BEECH 300	159	134	9.8	84.2	8.2	50,353	14.6	376.1	10.9
BEECH 33	2,032	2,022	0.7	99.5	0.7	291,323	10.9	144.1	10.9
BEECH 35	6,756	5,961	2.9	88.2	2.5	719,063	12.0	120.6	11.7
BEECH 36	2,380	2,290	2.3	96.2	2.2	370,781	7.4	161.9	7.0
BEECH 45	309	290	6.3	93.7	5.9	27,999	21.0	96.7	20.1
BEECH 50	324	168	29.4	51.9	15.3	9,572	66.5	56.9	59.6
BEECH 55	2,166	2,069	2.6	95.5	2.5	319,955	10.5	154.6	10.1
BEECH 56	60	49	6.3	81.8	5.1	3,764	13.2	76.7	11.6
BEECH 58	1,515	1,350	5.5	89.1	4.9	304,958	18.6	225.9	17.8
BEECH 60	396	363	7.9	91.6	7.3	47,673	14.7	131.4	12.4
BEECH 65	118	107	11.3	90.8	10.3	7,406	36.7	69.1	34.9
BEECH 76	275	233	9.6	84.9	8.2	62,974	19.3	269.8	16.7

2.2 1990 GENERAL AVIATION POPULATION SIZE, ACTIVE AIRCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS  
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SDR MANUFACTURER/ MODEL GROUP	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL HOURS FLOWN	PERCENT STANDARD ERROR	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
BEECH 77	230	173	13.3	75.1	10.0	33,937	34.6	196.4	32.0
BEECH 80	156	116	10.1	74.4	7.5	14,149	36.7	122.0	35.3
BEECH 90	1,096	1,028	3.5	93.8	3.2	309,208	7.0	300.7	6.1
BEECH 95	447	412	7.4	92.1	6.8	43,844	19.9	106.5	18.5
BEECH 99	126	52	28.1	40.9	11.5	41,041	31.1	796.7	13.3
BELL 204	20	20	0.0	100.0	0.0	6,786	13.7	339.3	13.7
BELL 206	1,880	1,782	4.0	94.8	3.8	719,044	10.2	403.4	9.4
BELL 212	118	106	17.5	90.2	15.8	45,827	48.8	430.4	45.5
BELL 222	76	40	32.5	52.5	17.1	14,132	37.3	354.5	18.2
BELL 412	76	49	36.3	65.1	23.6	17,689	65.8	357.4	54.9
BELL 47	822	544	15.2	66.2	10.0	94,498	26.8	173.6	22.1
BLANCA11	80	55	12.5	69.3	8.7	1,893	23.6	34.2	20.0
BLANCA1413	249	77	27.4	31.0	8.5	4,293	33.3	55.7	18.9
BLANCA1419	263	191	10.8	72.5	7.9	7,452	26.0	39.1	23.6
BLANCA17	1,014	840	8.3	82.8	6.9	77,733	16.6	92.5	14.4
BLANCA7	2,311	1,769	4.3	76.6	3.3	121,175	8.8	68.6	7.7
BLANCA8	458	422	7.2	92.2	6.6	34,421	20.1	81.5	18.7
BNORM BN2	95	31	58.7	32.6	19.1	27,873	60.1	899.9	12.6
BOEING727	29	25	17.6	85.7	15.1	14,869	25.9	598.2	19.0
BOEING75	1,912	1,007	8.7	52.6	4.6	58,612	17.1	58.2	14.7
BOLRMS105	184	147	17.1	79.8	13.7	96,972	27.4	660.4	21.3

2.2 1990 GENERAL AVIATION POPULATION SIZE, ACTIVE AIRCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS  
BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

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SDR MANUFACTURER/ MODEL GROUP	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL HOURS FLOWN	PERCENT STANDARD ERROR	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
BOLKMS117	113	68	34.0	60.5	20.5	20,212	39.7	295.8	18.6
BRAERODHI25	129	129	0.0	100.0	0.0	59,963	9.8	464.8	9.8
BRASOVIS28	45	36	16.1	79.4	12.8	2,559	24.1	71.6	18.0
BRWSTRFLEET2	28	16	23.6	58.3	13.8	279	60.4	17.1	55.6
BRWSTRFLEET7	21	11	19.4	53.1	10.3	414	28.7	37.1	21.2
BUKER 131	30	16	24.7	52.0	12.9	1,027	33.4	65.8	22.4
CAMRONMODELO	44	41	6.5	94.1	6.1	2,309	16.8	55.8	15.4
CAMRONMODELO	237	140	15.6	58.9	9.2	3,744	27.9	26.8	23.2
CASA C212	40	40	0.0	100.0	0.0	21,249	26.2	531.2	26.2
CESSNA120	848	643	10.6	75.8	8.0	51,854	19.8	80.6	16.7
CESSNA140	2,342	1,785	6.1	76.2	4.7	104,243	13.8	58.4	12.4
CESSNA150	18,327	16,406	1.8	89.5	1.6	4,391,426	7.2	267.7	7.0
CESSNA170	2,474	1,980	5.7	80.0	4.5	246,830	41.7	124.7	41.3
CESSNA172	24,363	22,342	1.4	91.7	1.3	4,199,934	6.1	188.0	6.0
CESSNA175	1,274	1,039	6.7	81.6	5.4	65,334	16.5	62.9	15.1
CESSNA177	2,770	2,445	3.8	88.3	3.4	244,324	9.5	99.9	8.7
CESSNA180	2,767	2,458	4.4	88.8	3.9	233,687	13.7	95.1	13.0
CESSNA182	13,636	12,360	1.8	90.6	1.6	1,475,428	6.2	119.4	5.9
CESSNA185	1,574	1,464	3.6	93.0	3.3	211,487	10.5	144.4	9.9
CESSNA188	1,579	1,319	6.9	83.5	5.8	305,628	13.7	231.7	11.9
CESSNA190	83	46	25.0	55.8	13.9	1,355	33.0	29.3	21.6

2.2 1990 GENERAL AVIATION POPULATION SIZE, ACTIVE AIRCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS  
BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

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SDR MANUFACTURER/ MODEL GROUP	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL HOURS FLOWN	PERCENT STANDARD ERROR	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
CESSNA195	501	286	25.9	57.1	14.8	25,129	33.1	87.9	20.7
CESSNA205	238	195	12.1	82.0	9.9	15,791	25.9	80.9	22.9
CESSNA206	2,636	2,462	3.7	93.4	3.4	546,615	14.9	222.0	14.4
CESSNA207	318	241	21.4	75.9	16.3	191,720	30.6	794.0	21.9
CESSNA208	124	116	3.5	93.2	3.3	67,484	8.3	584.1	7.5
CESSNA210	5,771	5,116	3.2	88.7	2.9	664,334	8.1	129.9	7.4
CESSNA303	149	137	3.8	92.2	3.5	27,324	10.4	198.8	9.7
CESSNA305	278	229	7.1	82.5	5.9	41,148	23.8	179.4	22.7
CESSNA310	3,004	2,564	4.9	85.4	4.2	420,768	14.8	164.1	14.0
CESSNA320	312	163	30.6	52.1	16.0	20,243	44.9	124.4	32.8
CESSNA335	39	39	0.0	100.0	0.0	7,583	15.2	194.4	15.2
CESSNA336	70	21	39.9	30.4	12.1	1,618	51.8	75.9	33.0
CESSNA337	1,113	857	9.2	77.0	7.1	106,894	15.4	124.7	12.4
CESSNA340	885	822	5.1	92.9	4.8	125,743	13.1	153.0	12.0
CESSNA401	218	205	5.3	94.0	4.9	42,619	15.2	208.0	14.3
CESSNA402	604	456	12.5	75.5	9.4	299,018	22.3	655.7	18.5
CESSNA404	130	130	0.0	100.0	0.0	64,239	33.2	494.1	33.2
CESSNA411	130	39	69.9	30.0	21.0	2,098	76.9	53.7	32.0
CESSNA414	753	753	0.0	100.0	0.0	170,728	12.4	226.7	12.4
CESSNA421	1,163	1,046	5.8	89.9	5.3	178,685	13.2	170.8	11.8
CESSNA425	176	173	2.7	98.6	2.7	44,546	10.8	256.8	10.5

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SDR MANUFACTURER/ MODEL GROUP	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL HOURS FLOWN	PERCENT STANDARD ERROR	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
CESSNA441	216	208	4.6	96.4	4.4	82,383	12.1	395.7	11.2
CESSNA500	693	689	1.5	99.4	1.5	220,440	13.8	320.0	13.7
CESSNA501	244	236	5.2	96.6	5.0	58,299	14.2	247.3	13.2
CESSNA650	149	135	7.4	90.6	6.7	62,182	13.3	460.7	11.1
CESSNA750	64	16	30.0	24.3	7.3	539	40.3	34.6	27.0
CESSNAUC94	31	7	41.8	23.9	10.0	96	45.7	12.9	18.4
CHILD S1	56	47	11.0	83.3	9.1	2,234	20.0	47.9	16.8
CHILD S2	155	140	9.4	90.4	8.5	8,096	22.0	57.8	19.9
CHRIS HUSKY	80	78	2.7	98.1	2.6	6,559	17.5	83.6	17.3
CNDAIRCL600	139	139	0.0	100.0	0.0	75,350	10.7	542.1	10.7
CNTRAR101	34	31	9.7	92.0	9.0	2,186	29.5	69.9	27.8
COMWTH185	104	39	23.5	38.0	8.9	3,360	35.1	85.1	26.1
CONAERLA4	446	297	20.1	66.7	13.4	16,054	33.2	54.0	26.4
CURTISJR	23	4	69.9	15.4	10.7	19	74.5	5.5	26.0
CURTISROBIN	29	0	0.0	0.0	0.0	0	0.0	0.0	0.0
CURTISTRVAIR	180	38	25.6	21.0	5.4	2,725	32.9	72.1	20.6
CVAC 240	31	3	164.6	8.3	13.7	517	164.6	200.0	0.0
CVAC 440	22	4	127.3	16.7	21.2	697	127.3	190.0	0.0
CVAC BT13	115	52	12.8	45.4	5.8	2,237	18.4	42.8	13.2
CVAC STC580	58	33	27.7	56.5	15.7	15,814	33.7	482.2	19.3
DART G	23	7	54.0	31.3	16.9	256	55.3	35.6	11.9

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DHAV DHC1	102	62	15.4	60.3	9.3	2,776	22.4	45.1	16.3
DHAV DHC2	234	145	21.7	62.1	13.5	54,491	24.8	375.2	11.9
DHAV DHC3	40	0	0.0	0.0	0.0	0	0.0	0.0	0.0
DHAV DHC4	31	31	0.0	100.0	0.0	2,635	0.0	85.0	0.0
DHAV DHC6	88	72	15.7	82.4	12.9	52,308	46.4	721.8	43.7
DHAVXDXH82	78	53	12.5	67.7	8.4	1,741	23.8	32.9	20.3
DORNERDO228	29	29	0.0	100.0	0.0	66,700	0.0	2,300.0	0.0
DOUG A26	29	18	32.3	62.5	20.2	881	40.2	48.6	24.0
DOUG DC3	367	221	31.8	60.3	19.2	57,153	40.1	258.2	24.5
DOUG DC4	59	24	26.9	41.3	11.1	2,148	38.8	88.1	28.0
EAGLE DW	69	51	16.7	73.6	12.3	13,132	22.1	258.6	14.5
EAGLEBAX7	21	13	37.8	62.5	23.6	420	38.9	32.0	9.0
EAGLEBEC7	73	24	60.3	33.3	20.1	577	66.2	23.7	27.3
EIRVON20	112	108	5.0	96.4	4.8	6,852	21.2	63.4	20.6
EMB 110	63	22	97.1	34.6	33.6	39,949	98.5	1,831.9	16.6
EMB 120	46	42	15.5	92.0	14.3	103,033	28.5	2,434.6	23.9
ENSTRMF28	408	316	6.1	77.5	4.7	53,078	18.1	163.3	17.0
FLEET 16B	23	19	14.1	83.3	11.8	466	32.9	24.3	29.7
FRCHLD24	276	130	13.7	47.1	6.4	2,810	27.4	21.6	23.7
FRCHLDC119	26	0	0.0	0.0	0.0	0	0.0	0.0	0.0
FRCHLDF27	21	18	18.6	83.3	15.5	5,621	25.1	321.2	16.8



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FRCHLDM62	224	139	14.5	62.1	9.0	7,006	37.9	50.4	35.0
GALAXYGX7	50	50	0.0	100.0	0.0	1,653	15.9	33.1	15.9
GENBALAX6	57	22	40.9	38.3	15.7	478	43.0	21.9	13.3
GLASER300	20	14	19.2	71.4	13.7	594	25.6	41.6	17.0
GLASER400	34	34	0.0	100.0	0.0	1,759	13.7	51.7	13.7
GLASFL201	36	10	79.7	28.6	22.8	445	82.5	43.3	21.3
GLASFLH301	112	73	11.4	65.1	7.4	4,292	20.9	58.8	17.5
GROB 103CAT	60	60	0.0	100.0	0.0	8,086	19.9	134.8	19.9
GROB 109	64	57	7.7	88.9	6.9	7,079	22.8	124.4	21.5
GROB ASTIR	55	49	6.7	88.4	5.9	3,123	15.2	64.3	13.7
GRTLKS2T1	185	129	10.5	69.6	7.3	5,346	19.2	41.5	16.0
GRUMANSAL6	59	18	34.3	31.1	10.7	1,235	43.9	56.2	23.5
GRUMAVAA1	556	462	7.9	83.1	6.5	39,015	24.2	84.5	22.9
GRUMAVAA5	1,026	895	6.1	87.3	5.3	96,544	10.6	107.8	8.6
GRUMAVG1159	33	33	0.0	100.0	0.0	12,598	7.7	381.8	7.7
GRUMAVG164	1,126	974	6.6	86.5	5.7	378,578	9.2	388.9	6.4
GRUMAVG21	51	38	17.6	74.4	13.1	4,251	49.0	112.1	45.7
GRUMAVTBM	33	17	27.7	50.8	14.1	1,016	45.0	60.6	35.4
GULSTM112	632	592	5.1	93.7	4.8	45,153	13.2	76.2	12.1
GULSTM500	297	268	4.8	90.3	4.3	51,332	14.7	191.4	13.9
GULSTM520	47	31	38.6	66.7	25.8	642	86.9	20.5	77.8

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GULSTM560	108	101	11.0	93.7	10.3	11,307	40.4	111.8	38.9
GULSTM680	294	150	36.3	51.1	18.6	19,968	44.4	132.8	25.6
GULSTM680TP	90	21	85.9	23.3	20.1	5,364	86.0	255.4	1.8
GULSTM690TC	62	22	0.0	100.0	0.0	5,234	15.7	237.9	15.7
GULSTM690TP	369	362	2.7	98.2	2.6	101,701	10.4	280.7	10.1
GULSTMAA1	572	506	5.6	88.5	5.0	32,009	13.8	63.2	12.6
GULSTMAA5	633	607	3.9	95.8	3.7	49,713	15.0	82.0	14.5
GULSTMGI159	274	249	7.8	91.0	7.1	94,391	16.0	378.6	14.0
GULSTMGI159	81	71	10.5	87.5	9.2	21,784	23.1	307.4	20.5
GULSTMGA4	92	62	14.3	67.2	9.6	9,494	29.7	153.5	26.1
GULSTMG73	28	16	30.5	58.9	17.9	2,962	39.6	179.7	25.2
GULSTMGA7	47	44	6.6	93.1	6.2	7,160	12.4	163.7	10.5
H23/HTE	34	9	32.1	26.0	8.4	2,326	34.1	262.9	11.5
H34/55	27	1	243.7	4.5	11.1	66	243.7	54.0	0.0
HELIO H295	95	69	12.9	72.9	9.4	7,667	19.2	110.7	14.2
HELIO H391	23	14	29.1	60.0	17.5	445	59.2	32.3	51.6
HILLERFH1100	62	21	58.2	34.2	19.9	558	70.2	26.3	39.2
HILLERUH12	563	418	12.7	74.2	9.4	86,182	23.1	206.4	19.5
HSPAVNHA200	29	19	24.7	66.7	16.4	545	32.8	28.2	21.6
HUGHES269	637	450	17.5	70.6	12.4	201,728	27.9	448.7	21.7
HUGHES369	572	446	16.3	78.0	12.7	121,987	35.0	273.5	30.9

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HWKSLYDH104	31	8	132.4	25.0	33.1	31	132.4	4.0	0.0
HWKSLYDH125	165	163	2.9	98.6	2.9	45,988	15.9	282.7	15.6
HYNES P2	122	55	26.0	44.7	11.6	2,999	30.8	55.0	16.6
INTRCP200	33	27	9.2	81.0	7.5	3,825	32.4	143.2	31.1
ISRAEL1121	97	90	6.3	93.0	5.9	8,781	18.0	97.3	16.9
ISRAEL1123	21	21	0.0	100.0	0.0	3,257	15.8	155.1	15.8
ISRAEL1124	211	201	5.0	95.5	4.8	60,389	12.1	299.7	11.0
JBMSTRDGA15	83	37	21.7	44.5	9.7	2,867	37.1	77.6	30.1
LAIFN10	37	3	115.8	8.3	9.7	15	115.8	5.0	0.0
LEAR 23	50	50	0.0	100.0	0.0	8,500	0.0	70.0	0.0
LEAR 24	165	150	7.9	91.0	7.1	66,352	24.3	441.9	23.0
LEAR 25	238	160	25.7	67.2	17.3	45,799	32.3	286.4	19.6
LEAR 35	414	359	9.7	86.8	8.4	150,274	17.6	418.3	14.7
LEAR 55	104	104	0.0	100.0	0.0	51,703	20.9	497.1	20.9
LET L13	159	146	5.4	91.8	5.0	12,439	15.5	85.2	14.5
LKHEED1329	75	75	0.0	100.0	0.0	22,578	10.2	301.0	10.2
LKHEED18	56	43	36.5	76.5	27.9	1,265	46.9	29.5	29.4
LKHEEDP2V	33	4	214.0	11.1	23.8	11	214.0	3.0	0.0
LKHEEDPVL	35	5	119.3	15.4	18.4	70	121.0	13.0	20.1
LKHEEDT33	47	16	24.9	33.1	8.3	493	33.6	31.7	22.6
LUSCOM8	2,132	914	14.3	42.9	6.1	37,212	21.2	40.7	15.7

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MACDOUG369	69	67	4.1	96.9	4.0	50,052	13.1	748.8	12.4
MARTIN404	22	3	136.4	12.5	17.0	19	136.4	7.0	0.0
MAULE M4	258	218	12.3	84.5	10.4	12,069	25.2	55.4	22.0
MAULE M5	437	407	3.8	93.2	3.6	27,254	12.5	66.9	11.9
MAULE M6	65	59	3.9	91.4	3.6	5,998	10.7	100.9	10.0
MCLISHFUNKB	143	62	16.2	43.2	7.0	2,285	23.8	37.0	17.4
MEYERSOTW	46	15	25.8	33.4	8.6	297	32.3	19.3	19.5
MILITARY204	207	150	13.9	72.5	10.1	41,258	21.0	275.0	15.7
MILITARY47	379	165	24.2	43.5	10.5	24,160	30.4	146.4	18.4
MNC0UP90	55	15	42.2	26.5	11.2	542	49.5	37.2	25.8
MNMITEM18	135	72	20.1	53.5	10.8	3,450	56.5	47.8	52.8
MODFD47	54	37	16.3	67.6	11.0	5,719	24.9	156.7	18.8
MOONEYM20	6,519	5,938	2.6	91.1	2.4	862,062	8.9	145.2	8.5
MRCHTIS205	45	27	14.8	60.7	9.0	864	21.3	31.6	15.4
MTSBSIM02	305	280	10.7	91.8	9.9	48,729	30.9	174.0	28.9
MTSBSIM0300	75	75	0.0	100.0	0.0	21,831	8.8	291.1	8.8
MULTECD16	38	12	40.0	31.6	12.6	520	42.4	43.3	14.1
NAMER B25	50	30	18.3	60.5	11.1	1,400	26.6	46.3	19.3
NAMER F51	146	88	17.5	60.2	10.5	5,024	39.0	57.2	34.9
NAMER NA260	272	125	17.7	62.0	11.0	5,862	31.7	46.8	26.3
NAMER T6	564	411	11.9	72.8	8.6	22,530	21.9	54.9	18.4

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NATBAL752	34	34	0.0	100.0	0.0	1,067	44.0	31.4	44.0
NAVAL N3N	119	41	23.4	34.1	8.0	1,639	29.7	40.4	18.2
NAVIONNAVION	584	421	9.3	72.1	6.7	24,437	16.1	58.0	13.2
NORD 3202	25	16	27.0	65.2	17.6	1,310	32.1	80.3	17.3
NORD SV4	43	23	16.5	54.6	9.0	788	31.0	33.6	26.2
NORWST65	54	23	22.7	41.9	9.5	949	27.7	42.0	15.8
ORLHELH19	72	8	205.5	10.9	22.3	333	206.2	42.5	18.0
ORLHEL558	32	0	0.0	0.0	0.0	0	0.0	0.0	0.0
PARTENP68	36	36	0.0	100.0	0.0	11,486	21.1	319.1	21.1
PICARDAX6	136	27	42.0	19.9	8.4	1,324	50.1	48.8	27.3
PILATSB4	28	26	5.7	94.4	5.4	2,882	40.3	109.0	39.9
PIPER 600	365	356	3.6	97.5	3.6	69,491	16.7	195.4	16.3
PIPER J2	56	22	28.6	40.0	11.4	281	61.1	12.6	54.0
PIPER J3	4,288	2,333	6.3	54.4	3.4	171,808	18.2	73.7	17.0
PIPER J4	231	73	20.8	31.5	6.6	2,882	37.3	39.6	30.9
PIPER J5	318	151	10.0	47.6	4.8	13,788	28.1	91.1	26.2
PIPER PA12	1,353	807	8.1	59.6	4.8	76,889	17.9	95.3	16.0
PIPER PA14	104	62	16.1	60.2	9.7	13,891	47.4	221.9	44.6
PIPER PA15	180	85	13.7	47.5	6.5	2,703	16.5	31.6	9.1
PIPER PA16	357	171	16.3	47.9	7.8	12,453	26.2	72.8	20.5
PIPER PA17	103	50	21.2	48.8	10.3	1,893	30.3	37.7	21.7

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PIPER PA18	3,624	2,780	5.7	76.7	4.4	318,381	15.9	114.5	14.8
PIPER PA20	446	279	10.4	62.6	6.5	16,262	17.5	58.3	14.0
PIPER PA22	4,699	3,049	6.4	64.9	4.1	180,989	9.6	59.4	7.2
PIPER PA23	3,255	2,934	4.2	90.1	3.8	376,987	12.0	128.5	11.3
PIPER PA24	3,150	2,902	3.0	92.1	2.8	258,309	8.3	89.0	7.8
PIPER PA25	1,076	758	12.2	70.4	8.6	176,285	17.7	232.7	12.9
PIPER PA28	21,814	20,331	1.2	93.2	1.1	2,825,777	6.5	138.9	6.4
PIPER PA30	1,236	1,138	4.7	92.1	4.3	119,337	14.2	104.8	13.4
PIPER PA31	1,744	1,690	2.9	96.9	2.8	376,116	13.0	223.8	12.6
PIPER PA31T	501	467	5.5	93.3	5.1	111,810	12.8	239.3	11.6
PIPER PA32	4,216	3,734	3.3	88.6	2.9	542,689	7.3	145.3	6.5
PIPER PA34	1,804	1,697	4.0	94.1	3.8	352,808	14.7	207.9	14.2
PIPER PA36	306	277	7.7	90.7	7.0	63,489	12.3	228.8	9.6
PIPER PA38	1,171	1,057	5.2	90.3	4.7	273,623	18.2	258.8	17.5
PIPER PA42	93	83	7.4	89.7	6.6	27,834	10.4	333.5	7.4
PIPER PA44	292	284	3.2	97.3	3.1	152,299	15.3	535.8	15.0
PIPER PA46	282	281	1.7	99.5	1.7	63,468	10.8	226.2	10.7
PROPT200	67	52	21.7	77.1	16.7	2,757	38.4	53.3	31.7
RAVEN RX6	179	37	37.5	20.5	7.7	507	51.2	13.8	34.8
RAVEN S50	80	14	51.2	17.2	8.8	173	66.8	12.6	42.9
RAVEN S55	747	388	16.6	52.0	8.6	13,913	28.1	35.8	22.6

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RAVEN S57	100	89	3.9	88.7	3.4	4,289	9.8	48.3	9.0
RAVEN S60	228	202	7.9	88.7	7.0	7,470	17.5	36.9	15.6
RAVEN S66	50	31	32.4	62.5	20.2	923	81.6	29.5	74.9
RKWE1500	32	32	0.0	100.0	0.0	10,124	20.9	316.4	20.9
RKWE1700	22	22	0.0	100.0	0.0	4,371	21.2	198.7	21.2
RKWE1NA265	281	262	6.2	93.1	5.8	95,044	15.2	363.3	13.9
ROBSINR22	494	494	0.0	100.0	0.0	255,123	15.9	516.4	15.9
ROLSCHLS	121	107	6.2	88.6	5.5	7,806	13.3	72.8	11.8
RYAN ST3	167	125	10.3	74.7	7.7	4,528	26.0	36.3	23.9
RYAN STA	30	11	49.6	35.0	17.3	169	53.1	16.1	19.1
SAAB SF340	25	25	0.0	100.0	0.0	16,875	0.0	675.0	0.0
SCHEMPDISCUS	45	45	0.0	100.0	0.0	3,564	13.9	79.2	13.9
SCHLERASK21	31	31	0.0	100.0	0.0	7,291	15.5	235.2	15.5
SCHLERASW15	34	27	11.5	80.0	9.2	1,145	15.1	42.1	9.7
SCHLERASW19	53	45	9.3	84.3	7.8	3,563	15.7	79.7	12.7
SCHLERASW20	88	79	12.7	89.5	11.3	4,767	33.3	60.5	30.8
SCHLERK8	24	17	14.5	70.6	10.2	726	30.5	42.8	26.9
SCHLERKA6	67	31	14.2	47.0	6.7	909	22.2	28.9	17.1
SCHWZH269	71	49	19.2	69.0	13.3	20,675	31.3	421.7	24.7
SCWZERG164	208	156	16.4	75.0	12.3	37,492	22.1	240.3	14.8
SCWZERSG1	733	542	5.8	74.0	4.3	24,345	15.2	44.9	14.1

2.2 1990 GENERAL AVIATION POPULATION SIZE, ACTIVE AIRCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS  
BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

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SDR MANUFACTURER/ MODEL GROUP	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL HOURS FLOWN	PERCENT STANDARD ERROR	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
SCWZERSG2	560	336	12.0	60.1	7.2	42,461	25.2	126.2	22.1
SEMCO MODELT	28	14	45.5	50.0	22.8	51	48.0	3.7	15.3
SKRSKYS55	32	3	152.8	10.4	15.9	33	152.8	10.0	0.0
SKRSKYS58	68	40	35.4	58.8	20.8	3,823	42.4	95.7	23.3
SKRSKYS58T	37	20	30.1	52.9	16.0	6,546	31.4	334.2	9.0
SKRSKYS61	23	18	12.8	80.2	10.3	18,985	24.0	1,028.8	20.3
SKRSKYS76	167	163	5.7	97.8	5.5	88,914	17.5	544.5	16.6
SLINDS100	300	189	13.2	63.0	8.3	10,309	21.1	54.5	16.4
SMITH 600	346	289	11.3	83.6	9.4	69,323	31.1	239.7	28.9
SNAIS350	56	38	24.6	67.6	16.6	20,018	30.5	520.4	18.1
SNIAS 350	201	163	15.6	81.0	12.7	113,105	23.2	694.9	17.2
SNIAS SA341	29	17	39.5	59.7	23.6	5,127	67.8	296.0	55.0
SOCATAMS894	37	33	6.4	88.0	5.6	1,777	13.4	54.6	11.8
SOCATARALLYE	18	17	6.0	92.3	5.6	1,095	19.8	65.9	18.8
SOCATATE10	60	41	21.9	68.2	15.0	8,040	32.7	196.4	24.2
SOCATATE20	147	117	14.1	79.7	11.2	13,058	26.5	111.5	22.4
SPHRTHCIRRUS	94	79	6.9	84.4	5.8	3,848	17.9	48.5	16.5
SPHRTENIMBUS	48	41	11.7	84.4	9.8	1,757	23.4	43.4	20.3
SPHRTHVENTUS	42	37	9.3	88.5	8.2	2,508	20.3	67.5	18.1
STBROSSC7	20	20	0.0	100.0	0.0	10,483	25.3	524.1	25.3
STBROSSD3	66	66	0.0	100.0	0.0	330	0.0	5.0	0.0



2.2 1990 GENERAL AVIATION POPULATION SIZE, ACTIVE AIRCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS  
BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

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SDR MANUFACTURER/ MODEL GROUP	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL HOURS FLOWN	PERCENT STANDARD ERROR	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
STNSON10	140	31	35.5	22.0	7.8	1,441	52.1	46.8	38.1
STNSONJR	20	4	53.7	21.4	11.5	14	59.8	3.3	26.4
STNSONL5	119	29	27.4	24.7	6.8	1,650	34.1	56.0	20.3
STNSONSR9	23	1	114.6	5.9	6.7	9	114.6	7.0	0.0
STNSONV77	104	30	37.6	29.2	11.0	839	45.8	27.6	26.2
STOLAMRC3	207	82	10.9	39.7	4.3	3,121	15.8	37.9	11.4
SUPAC LA	89	22	46.2	24.7	11.4	1,013	49.9	46.2	18.8
SUPAC V	26	0	0.0	0.0	0.0	0	0.0	0.0	0.0
SWRNGNSA226	181	134	14.4	74.0	10.6	41,582	23.9	258.5	11.7
SWRNGNSA227	76	60	12.1	78.8	9.5	46,311	24.5	773.0	21.4
SWRNGNSA26	80	78	7.0	96.9	6.8	12,785	32.4	165.0	31.6
TCRAFKD	291	157	16.8	54.1	9.1	10,916	27.6	69.3	21.9
TCRAFTA	27	7	23.9	25.7	6.2	98	26.0	14.1	10.2
TCRAFTBC	1,866	898	11.9	48.1	5.7	46,008	16.5	51.2	11.5
TCRAFTBF	37	15	23.6	40.7	9.6	542	47.4	36.0	41.1
TCRAFTBL	219	44	39.7	20.0	8.0	2,026	45.9	46.2	23.2
TEMCO 11A	26	18	12.2	70.5	8.6	1,041	24.0	56.8	20.7
TH55	59	33	17.1	56.7	9.7	3,222	32.4	96.2	27.5
THUNDRAX7	91	81	9.7	88.7	8.6	3,130	19.6	38.8	17.1
TMPSONNAVION	632	367	16.8	58.0	9.7	16,530	25.5	45.1	19.2
TOMCAT	40	32	15.2	79.3	12.1	3,214	27.9	101.3	23.3

2.2 1990 GENERAL AVIATION POPULATION SIZE, ACTIVE AIRCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS  
BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

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SDR MANUFACTURER/ MODEL GROUP	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL HOURS FLOWN	PERCENT STANDARD ERROR	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
TRYTEK65	334	135	18.6	40.3	7.5	7,515	30.4	55.8	24.0
TRYTEKK	26	2	131.2	7.7	10.1	84	131.2	42.0	0.0
UNIVACGC1	673	450	11.2	66.9	7.5	21,178	20.2	47.0	16.8
UNIVAR108	2,012	1,135	7.0	56.4	4.0	51,388	12.9	45.3	10.8
UNIVAR415	2,403	1,268	12.0	52.8	6.3	78,971	18.2	62.3	13.7
VALENT17	22	22	0.0	100.0	0.0	1,143	26.1	52.0	26.1
VARGA 2150	131	121	8.8	92.1	8.1	8,830	16.9	73.2	14.4
WACO ASO	28	8	27.1	28.6	7.7	595	46.8	74.3	38.2
WACO GXE	35	8	25.6	21.8	5.6	148	36.1	19.3	25.5
WACO R	31	8	33.3	25.0	8.3	273	38.1	35.3	18.5
WACO UPF7	153	71	10.0	46.4	4.6	5,762	37.4	81.1	36.1
WACO YK	49	15	29.8	30.5	9.1	224	37.1	15.0	22.2
WSK M18	35	35	0.0	100.0	0.0	5,833	94.5	166.7	94.5
WTHRLY201	60	54	10.1	90.2	9.1	17,442	21.7	322.1	19.2
TOTAL	266,344	212,229	0.5	79.7	0.4	34,766,528	1.7	159.3	1.7

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

2.3 1990 GENERAL AVIATION POPULATION SIZE, ACTIVE AIRCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS  
BY REGION OF BASED AIRCRAFT

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REGION	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL HOURS FLOWN	PERCENT STANDARD ERROR	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
ALASKAN	9,225	7,013	6.4	76.0	6.5	1,055,502	8.7	140.1	9.7
CENTRAL	14,938	11,795	5.4	79.0	5.8	1,539,944	7.1	128.7	5.4
EASTERN	30,950	24,699	3.6	79.8	3.9	3,719,169	5.3	146.6	5.5
GREAT LAKES	47,284	37,311	2.9	78.9	3.1	5,397,384	4.4	141.5	4.1
NEW ENGLAND	10,226	8,718	6.4	85.2	7.5	1,196,235	8.4	137.9	7.0
NORTHWEST MT.	27,111	21,803	3.9	80.4	4.3	3,408,433	6.1	148.9	5.2
SOUTHERN	43,723	35,193	3.0	80.5	3.2	6,218,393	4.1	172.0	4.5
SOUTHWESTERN	34,892	28,336	3.3	81.2	3.7	5,130,274	4.6	176.9	5.0
WESTERN-PACIFIC	47,919	37,353	2.8	77.9	3.0	6,932,348	4.2	179.6	5.4
TOTAL	266,344	212,229	0.5	79.7	0.4	34,632,692	1.8	158.3	1.7

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

2.4 1990 GENERAL AVIATION POPULATION SIZE, ACTIVE AIRCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS  
BY STATE OF BASED AIRCRAFT

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STATE	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL HOURS FLOWN	PERCENT STANDARD ERROR	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
ALABAMA	4,161	3,364	10.5	80.8	11.5	581,431	13.3	172.5	14.0
ALASKA	9,225	7,013	6.4	76.0	6.5	1,055,502	8.7	140.1	9.7
ARIZONA	6,923	5,486	8.1	79.3	8.7	898,472	11.6	161.3	10.4
ARKANSAS	3,020	2,507	11.9	83.0	13.5	429,949	14.1	173.0	11.6
CALIFORNIA	37,772	29,316	3.3	77.6	3.4	5,353,416	4.5	177.7	6.6
COLORADO	5,311	4,452	9.1	83.8	10.4	785,965	12.1	170.6	9.8
CONNECTICUT	2,291	1,919	13.9	83.8	15.9	323,468	18.0	169.8	13.3
DELAWARE	1,403	1,328	16.5	94.7	22.0	233,857	22.6	176.5	18.0
DIST. OF COLUMBIA	14	12	108.3	88.1	129.8	1,202	137.0	100.3	38.1
FLORIDA	16,736	13,290	5.2	79.4	5.6	2,488,161	6.2	185.1	9.4
GEORGIA	5,683	4,476	9.0	78.8	9.6	797,280	11.6	172.7	10.4
HAWAII	659	561	25.1	85.1	29.5	277,817	31.5	441.6	22.2
IDAHO	2,165	1,827	14.3	84.4	16.4	294,514	19.8	155.2	11.2
ILLINOIS	8,520	6,769	7.3	79.5	7.9	1,206,072	8.9	168.8	10.5
INDIANA	4,836	3,897	9.8	80.6	10.6	543,442	15.9	137.3	18.3
IOWA	3,417	2,683	11.6	78.5	12.4	277,117	16.0	102.8	8.7
KANSAS	4,182	3,363	10.4	80.4	11.3	463,322	12.6	136.5	9.1
KENTUCKY	1,951	1,554	15.6	79.6	16.8	250,947	20.6	159.4	12.9
LOUISIANA	3,983	3,391	10.3	85.1	12.0	1,071,912	12.5	301.9	9.9
MAINE	1,900	1,721	15.2	90.6	19.2	255,465	20.4	148.9	21.1
MARYLAND	3,596	2,952	11.3	82.1	12.7	387,441	14.5	129.1	8.8
MASSACHUSETTS	3,456	3,025	11.2	87.5	13.6	411,192	12.4	135.8	8.8
MICHIGAN	9,265	7,461	7.0	80.5	7.6	890,692	8.5	117.0	8.1

2.4 1990 GENERAL AVIATION POPULATION SIZE, ACTIVE AIRCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS  
BY STATE OF BASED AIRCRAFT

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STATE	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL HOURS FLOWN	PERCENT STANDARD ERROR	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
MINNESOTA	6,486	4,893	8.6	75.4	8.6	708,299	10.7	142.7	9.3
MISSISSIPPI	2,101	1,842	14.2	87.7	17.2	338,040	17.9	185.7	18.4
MISSOURI	5,116	3,891	9.7	76.1	9.9	540,227	12.6	135.2	10.5
MONTANA	2,478	1,834	14.2	74.0	14.0	231,396	26.3	108.2	17.4
NEBRASKA	2,223	1,858	13.6	83.6	15.4	259,278	17.5	137.6	13.5
NEVADA	2,565	1,989	13.2	77.5	13.9	402,644	20.3	190.6	16.8
NEW HAMPSHIRE	1,503	1,173	17.1	78.0	17.9	108,506	23.0	88.9	9.8
NEW JERSEY	4,528	3,860	9.6	85.2	11.3	459,338	10.8	117.3	8.3
NEW MEXICO	2,787	1,963	13.2	70.4	12.2	289,152	22.7	146.7	16.7
NEW YORK	8,306	6,272	7.6	75.5	7.7	1,062,527	11.2	162.7	15.5
NORTH CAROLINA	5,636	4,803	8.8	85.2	10.3	708,229	11.0	146.4	9.6
NORTH DAKOTA	1,921	1,645	15.0	85.7	17.7	376,917	29.2	233.1	29.3
OHIO	9,398	7,501	7.0	79.8	7.5	963,474	8.4	126.4	8.1
OKLAHOMA	4,713	3,819	9.9	81.0	10.9	610,996	13.3	158.0	15.3
OREGON	6,068	5,011	8.6	82.6	9.7	751,970	13.2	143.3	11.2
PENNSYLVANIA	7,984	6,070	7.7	76.0	7.8	844,073	10.1	135.7	9.5
RHODE ISLAND	402	342	33.0	84.9	38.6	42,319	36.2	116.4	14.4
SOUTH CAROLINA	2,462	2,092	13.2	84.9	15.4	274,965	16.8	128.4	13.9
SOUTH DAKOTA	1,432	1,056	18.2	73.7	17.8	221,747	31.5	219.5	26.6
TENNESSEE	4,323	3,263	10.4	75.5	10.6	574,487	15.2	157.5	14.7
TEXAS	20,388	16,656	4.5	81.7	5.0	2,728,264	5.7	160.7	7.1
UTAH	1,816	1,348	16.7	74.2	16.7	374,792	26.5	252.1	23.0
VERMONT	674	537	25.7	79.7	27.7	55,285	40.7	116.0	24.5

2.4 1990 GENERAL AVIATION POPULATION SIZE, ACTIVE AIRCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS  
BY STATE OF BASED AIRCRAFT

PAGE 3 OF 3

STATE	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL HOURS FLOWN	PERCENT STANDARD ERROR	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
VIRGINIA	3,814	3,190	10.7	83.6	12.2	619,310	14.4	189.4	13.8
WASHINGTON	8,296	6,534	7.5	78.8	7.9	857,901	9.3	130.5	10.4
WEST VIRGINIA	1,305	1,015	19.7	77.7	20.6	111,423	23.5	106.1	14.0
WISCONSIN	5,425	4,090	9.6	75.4	9.7	486,742	12.1	116.7	9.4
WYOMING	976	797	21.3	81.6	23.7	111,895	28.7	126.3	12.3
PUERTO RICO	549	412	29.6	75.0	29.4	147,174	30.5	329.8	20.3
OTHER U.S. TERRITORIES	120	98	62.2	81.8	70.4	57,681	96.3	458.1	48.3
TOTAL	266,344	212,229	0.5	79.7	0.4	34,597,687	11.5	159.3	1.7

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

2.5 1990 GENERAL AVIATION TOTAL NUMBER OF LANDINGS BY REGION OF BASED AIRCRAFT  
BY AIRCRAFT TYPE

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AIRCRAFT TYPE	ALASKAN	CENTRAL	EASTERN	GREAT LAKES	NEW ENGLAND	NORTHWEST MOUNTAIN	SOUTHERN	SOUTH WESTERN	WESTERN-PACIFIC	TOTAL
<b>FIXED WING</b>										
<b>FIXED WING - PISTON</b>										
1 ENG: 1-3 SEATS	376,116	1,068,456	1,867,587	2,461,664	553,067	1,425,387	4,969,768	3,067,738	3,757,757	19,547,540
% STD. ERROR	19.8	20.4	15.9	10.7	19.0	15.6	16.2	15.8	16.1	6.3
1 ENG: 4+ SEATS	685,313	983,309	2,110,917	2,971,192	1,115,720	1,846,678	3,274,848	2,418,242	2,960,459	18,366,678
% STD. ERROR	19.5	22.1	10.5	9.7	25.3	12.1	14.4	11.4	10.9	4.6
1 ENGINE: TOTAL	1,061,429	2,051,765	3,978,504	5,432,856	1,668,787	3,272,065	8,244,616	5,485,980	6,718,216	37,914,218
% STD. ERROR	14.4	15.0	9.3	7.2	18.0	9.6	11.3	10.2	10.2	4.0
2 ENG: 1-6 SEATS	14,683	109,374	191,064	394,674	40,254	132,788	708,110	248,688	520,879	2,360,514
% STD. ERROR	77.9	27.1	22.4	18.9	44.8	33.2	16.8	23.7	29.5	9.6
2 ENG: 7+ SEATS	76,396	43,330	102,588	300,353	42,570	201,488	342,124	106,468	361,289	1,576,606
% STD. ERROR	65.2	62.1	26.9	29.7	48.1	32.9	22.7	42.5	25.6	11.6
2 ENGINE: TOTAL	91,079	152,704	293,652	695,027	82,824	334,276	1,050,234	355,156	882,168	3,937,120
% STD. ERROR	56.1	26.2	17.4	16.7	32.9	23.8	13.5	20.9	20.3	7.4
PISTON: OTHER	10,861	103	8,975	0	13	16	134,857	0	2,404	157,229
% STD. ERROR	178.2	479.7	250.3	0.0	3575.0	2636.3	92.8	0.0	76.5	81.8
PISTON: TOTAL	1,163,369	2,204,572	4,281,131	6,127,883	1,751,624	3,606,357	9,429,707	5,841,136	7,602,788	42,008,567
% STD. ERROR	14.0	14.1	8.8	6.6	17.2	9.0	10.1	9.7	9.3	3.7
<b>FIXED WING - TURBOPROP</b>										
2 ENG: 1-12 SEATS	2,338	62,622	167,493	192,599	18,689	106,935	295,966	184,342	410,618	1,441,602
% STD. ERROR	136.0	29.9	21.7	19.1	62.4	34.1	17.7	18.6	33.7	11.5
2 ENG: 13+ SEATS	8,158	58,894	210,687	70,541	24,243	89,945	352,430	129,519	69,228	1,013,645
% STD. ERROR	51.3	41.6	64.5	45.4	83.8	60.3	49.4	50.5	62.6	24.1
2 ENGINE: TOTAL	10,496	121,516	378,180	263,140	42,932	196,880	648,396	313,861	479,846	2,455,247
% STD. ERROR	50.1	25.4	37.2	18.6	54.5	33.2	28.0	23.5	30.3	12.0
TURBOPROP: OTHER	42,985	3,436	7,038	6,256	0	12,124	72,220	229,403	75,948	449,410
% STD. ERROR	81.9	75.9	57.4	70.9	0.0	60.3	51.0	55.9	73.9	33.2
TURBOPROP: TOTAL	53,481	124,952	385,218	269,396	42,932	209,004	720,616	543,264	555,794	2,904,657
% STD. ERROR	66.5	24.8	36.5	18.2	54.5	31.5	25.7	27.2	28.0	11.4

2.5 1990 GENERAL AVIATION TOTAL NUMBER OF LANDINGS BY REGION OF BASED AIRCRAFT  
BY AIRCRAFT TYPE

PAGE 2 OF 2

AIRCRAFT TYPE	ALASKAN	CENTRAL	EASTERN	GREAT LAKES	NEW ENGLAND	NORTHWEST MOUNTAIN	SOUTHERN	SOUTH WESTERN	WESTERN-PACIFIC	TOTAL
FIXED WING - TURBOJET										
2 ENGINE: TOTAL	974	67,207	154,115	290,562	54,262	64,075	235,413	156,889	138,108	1,161,605
% STD. ERROR	209.6	28.7	17.6	16.0	48.6	27.6	15.2	18.6	21.2	7.3
TURBOJET: OTHER	0	3,893	21,858	19,619	4,102	7,592	9,127	18,112	11,058	95,361
% STD. ERROR	0.0	85.3	45.0	40.3	86.5	116.7	61.1	54.4	47.6	21.4
TURBOJET: TOTAL	974	71,100	175,973	310,181	58,364	71,667	244,540	175,001	149,166	1,256,966
% STD. ERROR	209.6	27.5	16.4	15.2	45.6	27.6	14.8	17.6	19.9	7.0
FIXED WING: TOTAL	1,217,824	2,400,624	4,842,322	6,707,460	1,852,920	3,887,028	10,394,863	6,559,401	8,307,748	46,170,190
% STD. ERROR	13.7	13.0	8.3	6.1	16.4	8.5	9.3	8.9	8.7	3.4
ROTORCRAFT										
PISTON	12,545	85,547	114,968	50,001	62,758	335,407	321,829	213,964	1,244,221	2,441,240
% STD. ERROR	66.2	57.9	29.2	36.0	47.4	32.5	32.3	32.1	37.6	20.5
TURBINE	152,774	35,793	337,953	131,808	70,368	344,017	402,016	1,419,022	870,235	3,763,986
% STD. ERROR	95.6	100.5	32.0	65.8	82.5	38.0	34.3	35.3	27.9	16.6
ROTORCRAFT: TOTAL	165,319	121,340	452,921	181,809	133,126	679,424	723,845	1,632,986	2,114,456	6,205,226
% STD. ERROR	88.4	50.4	25.0	48.7	49.0	25.1	23.8	31.0	24.9	12.9
OTHER AIRCRAFT	1,069	16,440	88,406	58,970	28,271	55,178	110,448	47,647	169,619	576,048
% STD. ERROR	309.8	95.8	32.4	50.3	45.0	35.9	46.9	69.6	28.2	16.1
TOTAL	1,384,212	2,538,404	5,383,649	6,948,239	2,014,317	4,621,630	11,229,156	8,240,034	10,591,823	52,951,464
% STD. ERROR	16.0	12.6	7.8	6.1	15.5	8.1	8.8	9.4	8.5	3.3

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.



2.6 1990 GENERAL AVIATION NUMBER OF LANDINGS IN LOCAL FLIGHT BY REGION OF BASED AIRCRAFT  
BY AIRCRAFT TYPE

PAGE 1 OF 2

AIRCRAFT TYPE	ALASKAN	CENTRAL	EASTERN	GREAT LAKES	NEW ENGLAND	NORTHWEST MOUNTAIN	SOUTHERN	SOUTH WESTERN	WESTERN-PACIFIC	TOTAL
<b>FIXED WING</b>										
<b>FIXED WING - PISTON</b>										
1 ENG: 1-3 SEATS	194,973	943,281	1,542,557	2,109,574	446,628	1,241,363	4,243,022	2,784,341	3,239,115	16,744,854
% STD. ERROR	19.8	21.7	15.7	11.4	19.3	15.4	16.2	16.5	16.9	6.5
1 ENG: 4+ SEATS	261,571	664,565	1,408,346	2,032,286	808,525	1,202,710	2,331,745	1,547,407	1,743,990	12,001,145
% STD. ERROR	16.9	31.2	12.6	12.3	33.3	15.1	17.8	13.9	13.8	6.0
1 ENGINE: TOTAL	456,544	1,607,846	2,950,903	4,141,860	1,255,153	2,444,073	6,574,767	4,331,748	4,983,105	28,745,999
% STD. ERROR	12.9	18.1	10.2	8.4	22.5	10.8	12.2	11.7	12.0	4.5
2 ENG: 1-6 SEATS	4,534	37,640	78,696	110,363	17,661	81,353	226,176	106,541	303,367	966,331
% STD. ERROR	116.9	54.4	39.6	31.3	66.4	45.5	40.0	42.2	39.3	17.5
2 ENG: 7+ SEATS	5,198	4,908	29,140	110,572	16,720	23,779	114,118	19,034	39,595	363,064
% STD. ERROR	92.4	145.2	54.4	73.4	56.0	48.7	61.0	167.1	83.2	32.7
2 ENGINE: TOTAL	9,732	42,548	107,836	220,935	34,381	105,132	340,294	125,575	342,962	1,329,395
% STD. ERROR	73.5	50.9	32.4	39.9	43.6	36.9	33.6	43.9	36.1	15.5
PISTON: OTHER	462	23	8,975	0	13	6	67,461	0	1,368	78,308
% STD. ERROR	181.2	1430.6	251.2	0.0	2690.0	5312.3	88.2	0.0	98.6	81.3
PISTON: TOTAL	466,738	1,650,417	3,067,714	4,362,795	1,289,547	2,549,211	6,982,522	4,457,323	5,327,435	30,153,702
% STD. ERROR	12.7	17.7	9.9	8.2	21.9	10.4	11.6	11.5	11.4	4.4
<b>FIXED WING - TURBOPROP</b>										
2 ENG: 1-12 SEATS	733	4,842	7,939	16,960	3,471	4,671	15,909	17,037	127,055	198,617
% STD. ERROR	201.7	174.2	127.2	52.4	114.5	95.2	142.6	105.4	77.7	52.5
2 ENG: 13+ SEATS	1,876	514	4,375	882	21,904	8,488	183,378	2,402	1,213	225,032
% STD. ERROR	76.1	311.7	51.2	153.4	91.0	98.3	81.4	162.2	216.2	67.0
2 ENGINE: TOTAL	2,609	5,356	12,314	17,842	25,375	13,159	199,287	19,439	128,268	423,649
% STD. ERROR	78.8	160.3	84.0	50.4	80.1	71.9	75.7	94.6	77.0	43.3
TURBOPROP: OTHER	0	520	525	1,664	0	5,881	43,100	210,617	57,853	320,160
% STD. ERROR	0.0	205.3	129.6	77.4	0.0	82.5	78.0	66.1	91.3	47.7
TURBOPROP: TOTAL	2,609	5,876	12,839	19,506	25,375	19,040	242,387	230,056	186,121	743,805
% STD. ERROR	78.8	147.2	80.7	46.6	80.1	55.8	63.8	61.1	60.2	32.1

2.6 1990 GENERAL AVIATION NUMBER OF LANDINGS IN LOCAL FLIGHT BY REGION OF BASED AIRCRAFT  
BY AIRCRAFT TYPE

PAGE 2 OF 2

AIRCRAFT TYPE	ALASKAN	CENTRAL	EASTERN	GREAT LAKES	NEW ENGLAND	NORTHWEST MOUNTAIN	SOUTHERN	SOUTH WESTERN	WESTERN-PACIFIC	TOTAL
FIXED WING - TURBOJET										
2 ENGINE: TOTAL	27	1,304	5,996	10,283	2,318	4,508	16,178	13,361	14,422	68,397
% STD. ERROR	883.9	380.6	150.8	106.3	213.1	102.5	98.8	105.4	143.6	49.7
TURBOJET: OTHER										
% STD. ERROR	0	89	893	855	534	1,827	237	3,455	506	8,396
	0.0	821.9	248.9	160.1	191.0	309.0	531.6	179.4	673.8	114.2
TURBOJET: TOTAL										
% STD. ERROR	27	1,393	6,889	11,138	2,852	6,335	16,415	16,816	14,928	76,793
	883.9	360.1	135.2	98.9	176.9	115.2	97.7	91.5	140.6	46.0
FIXED WING: TOTAL										
% STD. ERROR	469,374	1,657,686	3,087,442	4,393,439	1,317,774	2,574,586	7,241,324	4,704,195	5,528,484	30,974,304
	12.6	17.6	9.8	8.1	21.5	10.4	11.4	11.3	11.2	4.3
ROTORCRAFT										
PISTON										
% STD. ERROR	5,841	81,401	101,804	46,005	57,223	305,295	253,292	184,234	1,041,395	2,076,490
	46.0	58.9	31.2	31.4	47.5	33.0	29.6	39.6	39.7	21.3
TURBINE										
% STD. ERROR	122,461	16,890	181,493	55,892	60,122	262,981	318,921	339,844	501,784	1,860,388
	99.6	101.0	34.4	73.8	92.2	43.6	35.4	26.2	26.8	14.8
ROTORCRAFT: TOTAL										
% STD. ERROR	128,302	98,291	283,297	101,897	117,345	568,276	572,213	524,078	1,543,179	3,936,878
	95.1	51.8	24.7	42.9	52.6	26.9	23.7	22.0	28.1	13.2
OTHER AIRCRAFT										
% STD. ERROR	948	15,750	82,962	57,153	26,487	51,402	107,840	44,580	165,001	552,123
	159.7	77.0	31.0	36.5	36.6	29.9	46.6	51.1	25.3	14.5
TOTAL										
% STD. ERROR	598,624	1,771,727	3,453,701	4,552,489	1,461,606	3,194,264	7,921,377	5,272,853	7,236,664	35,463,305
	22.7	16.8	9.0	7.9	19.9	9.6	10.6	10.3	10.5	4.1

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

2.7 1990 GENERAL AVIATION NUMBER OF LANDINGS IN CROSS COUNTRY FLIGHT BY REGION OF BASED AIRCRAFT  
BY AIRCRAFT TYPE

PAGE 1 OF 2

AIRCRAFT TYPE	ALASKAN	CENTRAL	EASTERN	GREAT LAKES	NEW ENGLAND	NORTHWEST MOUNTAIN	SOUTHERN	SOUTH WESTERN	WESTERN-PACIFIC	TOTAL
<b>FIXED WING</b>										
<b>FIXED WING - PISTON</b>										
1 ENG: 1-3 SEATS	181,043	122,264	326,119	348,008	106,542	182,803	719,763	275,640	515,175	2,777,357
% STD. ERROR	39.2	21.6	21.7	10.4	20.6	24.7	25.2	30.4	14.8	8.8
1 ENG: 4+ SEATS	419,861	318,716	701,011	936,016	306,129	644,755	943,607	868,709	1,215,209	6,354,013
% STD. ERROR	26.8	11.6	12.4	7.5	12.9	18.0	9.1	10.5	10.5	4.3
1 ENGINE: TOTAL	600,904	440,980	1,027,130	1,284,024	412,671	827,558	1,663,370	1,144,349	1,730,384	9,131,370
% STD. ERROR	22.2	10.3	10.9	6.1	11.0	15.1	12.1	10.8	8.6	4.0
2 ENG: 1-6 SEATS	10,075	71,576	112,578	284,888	22,315	51,479	482,080	142,352	217,607	1,395,050
% STD. ERROR	76.1	27.5	20.9	22.9	42.6	26.6	13.7	19.8	20.3	8.0
2 ENG: 7+ SEATS	71,192	38,472	72,806	186,721	25,558	177,521	223,215	88,618	311,108	1,195,211
% STD. ERROR	68.3	72.3	29.2	16.8	56.4	35.6	20.8	29.1	29.8	11.9
2 ENGINE: TOTAL	81,267	110,048	185,484	471,609	47,873	229,000	705,295	230,970	528,715	2,590,261
% STD. ERROR	60.5	31.0	17.1	15.3	36.1	28.2	11.4	16.5	19.4	7.0
PISTON: OTHER	10,399	80	0	0	0	9	67,395	0	1,014	78,897
% STD. ERROR	180.4	356.8	0.0	0.0	0.0	1678.0	95.7	0.0	73.3	85.2
PISTON: TOTAL	692,570	551,108	1,212,614	1,755,633	460,544	1,056,567	2,436,060	1,375,319	2,260,113	11,800,528
% STD. ERROR	20.7	10.3	9.6	6.1	10.5	13.3	9.3	9.4	8.0	3.5
<b>FIXED WING - TURBOPROP</b>										
2 ENG: 1-12 SEATS	1,648	57,873	159,377	176,120	15,274	102,252	280,092	168,103	290,558	1,251,297
% STD. ERROR	171.6	33.6	24.6	20.9	66.2	36.4	19.1	20.9	30.2	10.3
2 ENG: 13+ SEATS	6,282	56,680	206,883	69,068	2,141	83,048	161,290	127,692	68,207	781,291
% STD. ERROR	54.6	47.9	70.5	47.0	74.3	65.4	59.2	54.2	64.1	26.2
2 ENGINE: TOTAL	7,930	114,553	366,260	245,188	17,415	185,300	441,382	295,795	358,765	2,032,588
% STD. ERROR	56.1	29.2	41.2	20.0	58.8	35.5	24.8	26.2	27.4	11.9
TURBOPROP: OTHER	42,985	3,011	6,613	3,988	0	5,896	30,583	33,028	16,878	142,982
% STD. ERROR	83.1	83.2	63.1	63.5	0.0	82.0	47.0	33.6	77.6	29.9
TURBOPROP: TOTAL	50,915	117,564	372,873	249,176	17,415	191,196	471,965	328,823	375,643	2,175,570
% STD. ERROR	70.7	28.5	40.5	19.7	58.8	34.5	23.4	23.8	26.4	11.3

2.7 1990 GENERAL AVIATION NUMBER OF LANDINGS IN CROSS COUNTRY FLIGHT BY REGION OF BASED AIRCRAFT  
BY AIRCRAFT TYPE

PAGE 2 OF 2

AIRCRAFT TYPE	ALASKAN	CENTRAL	EASTERN	GREAT LAKES	NEW ENGLAND	NORTHWEST MOUNTAIN	SOUTHERN	SOUTH WESTERN	WESTERN-PACIFIC	TOTAL
FIXED WING - TURBOJET										
2 ENGINE: TOTAL	946	66,609	147,827	280,292	52,033	59,664	220,404	143,820	123,892	1,095,487
% STD. ERROR	211.6	32.7	19.8	18.5	55.4	30.8	17.9	20.3	24.1	8.4
TURBOJET: OTHER	0	3,805	21,010	18,851	3,447	5,791	8,887	14,983	10,657	87,431
% STD. ERROR	0.0	87.6	48.9	46.5	97.4	99.5	65.2	46.1	53.6	21.5
TURBOJET: TOTAL	946	70,414	168,837	299,143	55,480	65,455	229,291	158,803	134,549	1,182,918
% STD. ERROR	211.6	31.3	18.4	17.6	52.3	29.4	17.3	18.9	22.6	7.9
FIXED WING: TOTAL	744,431	739,086	1,754,324	2,303,952	533,439	1,313,218	3,137,316	1,862,945	2,770,305	15,159,016
% STD. ERROR	19.8	9.4	11.0	5.6	10.8	11.9	8.1	8.3	7.5	3.2
ROTORCRAFT										
PISTON	7,175	4,309	12,921	4,013	6,157	28,534	67,109	29,514	195,298	355,030
% STD. ERROR	88.1	40.4	30.6	77.6	45.8	54.7	51.2	55.5	57.8	33.9
TURBINE	29,838	18,901	157,470	73,908	11,764	87,363	84,357	1,014,963	374,622	1,853,186
% STD. ERROR	79.0	102.8	40.7	67.5	114.2	45.5	45.8	40.2	54.7	25.3
ROTORCRAFT: TOTAL	37,013	23,210	170,391	77,921	17,921	115,897	151,466	1,044,477	569,920	2,208,216
% STD. ERROR	66.0	84.0	37.6	64.2	76.6	36.8	34.1	39.1	41.0	21.9
OTHER AIRCRAFT	146	714	4,910	1,839	1,649	3,833	2,647	2,939	4,748	23,425
% STD. ERROR	862.5	126.4	72.9	145.5	104.6	90.1	174.4	174.2	104.8	44.7
TOTAL	781,590	763,010	1,929,625	2,383,712	553,009	1,432,948	3,291,429	2,910,361	3,344,973	17,390,657
% STD. ERROR	19.1	9.5	10.6	5.8	10.7	11.3	7.9	15.0	9.4	4.0

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

## CHAPTER III

### PRIMARY USE

The general aviation fleet is used to provide a wide array of services, such as air taxi, air cargo, industrial, agricultural, business, personal/recreation, instructional, research, patrol and sport fishing. This chapter considers the major uses of the general aviation fleet. Eleven primary use categories for general aviation aircraft are defined in the glossary section of Appendix D.

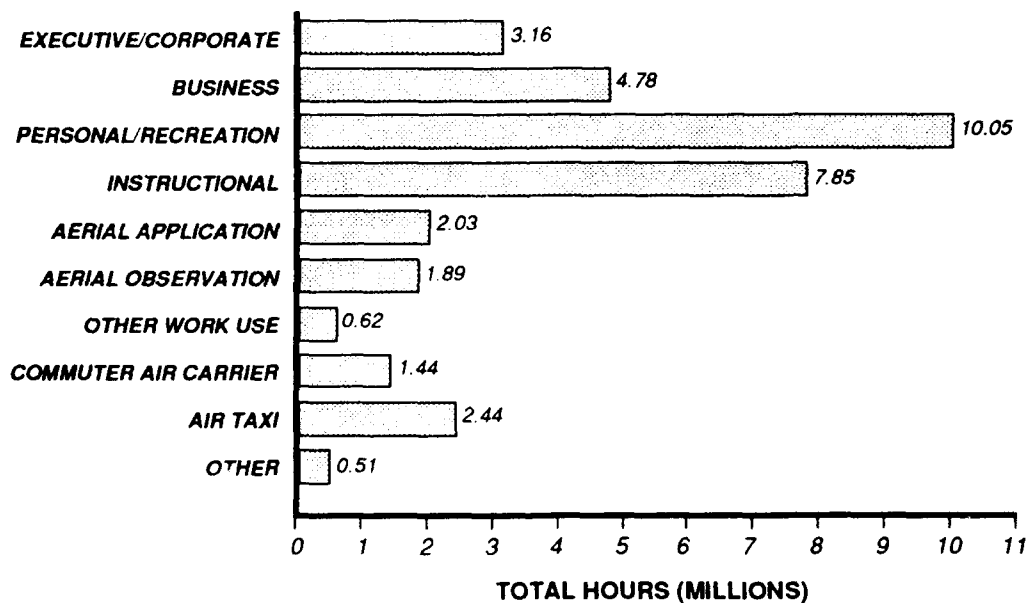
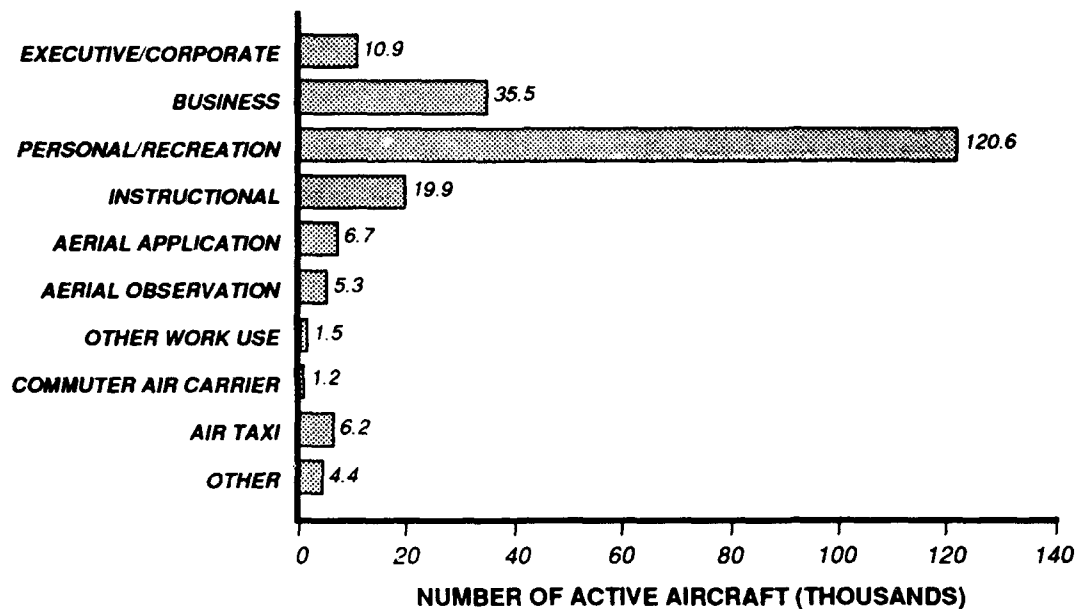
This chapter consists of three tables and three figures. Table 3.1 presents the estimated number of general aviation aircraft, in use and inactive, broken down by primary use category and aircraft type. Table 3.2 presents the estimated total hours by aircraft type in each primary use category. The final table in this chapter, Table 3.3, provides data on the estimated number of nautical miles flown by primary use and aircraft type. Figure 3.1 displays data on the general aviation population's total hours flown by primary use. Figures 3.2 and 3.3 show, by aircraft type, the general aviation fleet's growth of total hours flown and growth of active general aviation fleet size for the years 1986 to 1990.

Some key observations to be drawn from the tables and figures in this chapter are:

- o Of the 266,344 aircraft in the general aviation fleet, 212,229 aircraft or 79.7 percent are active.
- o The most frequent primary use category of the general aviation fleet is personal. More than 57 percent of the active number of aircraft in the general aviation fleet fall into this category. The second and third most frequent use categories are business, with 17 percent, and instructional, with 9 percent.
- o The general aviation fleet flew a little over 10 million personal use hours in 1990, accounting for approximately 29 percent of the total flight hours. The next closest use category, instructional, totaled more than 7.8 million hours or 23 percent of the total hours flown.
- o About 60 percent of the active fixed wing piston aircraft and about 78 percent of the aircraft listed in the "other" aircraft type category are used for personal use.
- o Of the 187,773 active fixed wing piston aircraft, about 10 percent (18,603 aircraft) are used for instructional purposes. These active instructional fixed wing piston aircraft account for 94 percent of the 19,889 general aviation aircraft used for instructional purposes.

- o More than 73 percent of the active turbojet and 51 percent of the active turboprop aircraft are used for executive/corporate purposes. Rotorcraft uses are spread broadly across the various use categories, with 19 percent for personal, 15 percent for air taxi, and 14 percent for aerial application purposes.
- o Over the six year period from 1985 through 1990, general aviation total flight time increased at an annual rate of 0.41 percent. The size of the general aviation fleet also slightly increased at an annual rate of 0.15 percent. However, total flight time in 1990 decreased slightly (by 248,000 hours).
- o The general aviation fleet flew almost 4.2 billion nautical miles in 1990, down 6 percent from 1989's figures. More than 1 billion nautical miles were flown in the personal use category, and the fixed wing piston aircraft group alone accounted for more than 97 percent of the nautical miles flown in this use category. The fixed wing piston aircraft also flew the most nautical miles of any aircraft group, nearly 3 billion nautical miles of the 4.2 billion flown by the general aviation fleet.

**Figure 3.1**  
**1990 GENERAL AVIATION NUMBER OF ACTIVE AIRCRAFT**  
**AND TOTAL HOURS BY PRIMARY USE**



**SOURCE:** Tables 3.1 and 3.2

**Figure 3.2**  
**GROWTH OF ACTIVE GENERAL AVIATION FLEET**  
**BY AIRCRAFT TYPE, 1986-1990**  
*(Number of Active Aircraft)*

<b>Aircraft Type</b>	<b>Base Year 1985 (% Standard Error)*</b>	<b>1986 (% Standard Error)</b>	<b>1987 (% Standard Error)</b>	<b>1988 (% Standard Error)</b>	<b>1989 (% Standard Error)</b>	<b>1990 (% Standard Error)</b>	<b>Compound Annual Growth Rate in %</b>
<b>FIXED WING</b>							
1-Engine Piston 1-3 Seats	58,829 (1.4)	62,427 (1.3)	63,533 (1.2)	59,553 (1.3)	62,618 (1.2)	60,507 (1.3)	0.56
1-Engine Piston 4+ Seats	105,555 (0.7)	109,351 (0.6)	107,502 (0.6)	105,207 (0.6)	107,752 (0.6)	104,566 (0.6)	-0.19
2-Engine Piston 1-6 Seats	15,627 (1.9)	16,166 (1.8)	15,741 (1.7)	15,143 (1.8)	15,927 (1.5)	15,186 (1.6)	-0.57
2-Engine Piston 7+ Seats	8,032 (2.2)	7,555 (3.0)	7,566 (2.0)	7,554 (2.4)	7,432 (1.9)	7,421 (2.4)	-1.57
Other Piston	148 (21.0)	148 (24.3)	112 (25.0)	99 (21.2)	86 (33.7)	94 (29.8)	-8.68
2-Engine Turboprop 1-12 Seats	4,833 (2.2)	4,089 (2.0)	4,337 (2.1)	4,231 (1.8)	4,888 (1.4)	4,320 (1.6)	-1.39
2-Engine Turboprop 13+ Seats	607 (6.4)	970 (5.8)	723 (4.3)	826 (5.3)	1,206 (5.0)	937 (6.9)	9.07
Other Turboprop	167 (7.8)	185 (16.2)	214 (8.9)	202 (6.9)	230 (14.3)	395 (7.1)	18.79
2-Engine Turbojet	3,914 (1.7)	4,037 (1.6)	3,900 (1.6)	3,821 (2.1)	4,004 (1.4)	3,950 (2.0)	0.18
Other Turbojet	460 (7.2)	444 (16.2)	458 (4.8)	367 (5.4)	398 (8.2)	425 (8.2)	-1.57
<b>ROTORCRAFT</b>							
Piston	2,877 (7.0)	2,921 (6.0)	2,813 (5.0)	2,584 (7.9)	3,244 (1.2)	3,459 (5.3)	3.75
Turbine	3,541 (4.5)	4,022 (3.1)	3,520 (4.2)	3,822 (2.7)	4,232 (0.4)	3,938 (3.1)	2.15
<b>OTHER AIRCRAFT</b>							
	6,263 (3.3)	7,010 (3.0)	6,783 (3.4)	6,857 (4.1)	7,721 (2.4)	7,032 (3.0)	2.34
<b>TOTAL AIRCRAFT</b>	210,654 (0.6)	220,044 (0.5)	217,183 (0.5)	210,226 (0.5)	219,737 (0.5)	212,229 (0.5)	0.15

**NOTE:** Column summations may differ from printed totals due to estimation procedures.

\* See Appendix A for an explanation of Percent Standard Error.



**Figure 3.3**  
**GROWTH OF GENERAL AVIATION TOTAL HOURS FLOWN**  
**BY AIRCRAFT TYPE, 1986-1990**  
*(Thousands of Hours)*

Aircraft Type	Base Year 1985 (% Standard Error)*	1986 (% Standard Error)	1987 (% Standard Error)	1988 (% Standard Error)	1989 (% Standard Error)	1990 (% Standard Error)	Compound Annual Growth Rate in %
<b>FIXED WING</b>							
1-Engine Piston 1-3 Seats	7,921 (3.7)	7,826 (3.7)	8,545 (3.8)	7,882 (4.0)	8,312 (3.9)	9,001 (3.9)	2.59
1-Engine Piston 4+ Seats	14,931 (2.5)	14,112 (2.5)	13,596 (2.3)	14,065 (2.6)	13,995 (2.7)	14,696 (2.7)	-0.32
2-Engine Piston 1-6 Seats	2,725 (5.3)	2,798 (5.8)	2,635 (5.7)	2,298 (4.3)	2,718 (4.1)	2,485 (4.7)	-1.83
2-Engine Piston 7+ Seats	2,190 (6.4)	2,113 (7.4)	2,248 (9.0)	1,959 (7.4)	1,930 (5.3)	1,734 (6.5)	-4.56
Other Piston	26 (34.6)	11 (45.5)	15 (33.3)	22 (44.5)	17 (67.3)	57 (48.7)	17.00
2-Engine Turboprop 1-12 Seats	1,465 (5.2)	1,648 (5.1)	1,483 (5.3)	1,558 (5.0)	1,692 (5.1)	1,458 (6.6)	-0.10
2-Engine Turboprop 13+ Seats	551 (10.5)	1,149 (10.6)	511 (11.9)	728 (12.0)	1,314 (9.8)	893 (14.1)	10.14
Other Turboprop	64 (10.9)	85 (14.1)	183 (24.6)	84 (14.9)	126 (16.6)	170 (10.9)	21.58
2-Engine Turbojet	1,461 (4.8)	1,566 (4.9)	1,421 (4.2)	1,548 (4.7)	1,542 (3.9)	1,385 (4.3)	-1.06
Other Turbojet	161 (10.6)	88 (21.6)	107 (10.3)	130 (10.9)	112 (12.2)	127 (12.2)	-4.63
<b>ROTORCRAFT</b>							
Piston	564 (15.1)	804 (12.8)	652 (9.2)	576 (11.6)	749 (2.1)	775 (10.2)	6.56
Turbine	1,590 (8.9)	1,820 (7.8)	1,631 (9.6)	2,131 (7.6)	2,080 (0.9)	1,617 (7.2)	0.34
<b>OTHER AIRCRAFT</b>							
	414 (8.2)	394 (7.6)	416 (6.0)	613 (24.2)	429 (7.4)	369 (7.0)	-2.28
<b>TOTAL HOURS</b>	34,063 (1.6)	34,416 (1.6)	33,443 (1.7)	33,593 (1.7)	35,015 (1.6)	34,767 (1.7)	0.41

**NOTE:** Column summations may differ from printed totals due to estimation procedures.

\* See Appendix A for an explanation of Percent Standard Error.

3.1 1990 GENERAL AVIATION NUMBER OF AIRCRAFT BY PRIMARY USE  
BY AIRCRAFT TYPE

PAGE 1 OF 3

ACTIVE USE

AIRCRAFT TYPE	TOTAL ACTIVE	CORP- ORATE	BUSI- NESS	PER- SONAL	INSTRUC- TIONAL	AERIAL APPL	AERIAL OBS	OTHER WORK	COMMUTER CARRIER	AIR TAXI	OTHER	IN- ACTIVE
FIXED WING												
FIXED WING - PISTON												
1 ENG: 1-3 SEATS	60,507	91	2,482	40,055	9,275	5,057	1,326	583	0	11	1,626	27,498
EST. NO. ACTIVE	1.3	46.5	12.0	1.6	5.6	3.6	16.8	20.7	0.0	132.7	15.3	
% STD. ERROR	68.8											
EST. % ACTIVE												
1 ENG: 4+ SEATS	104,566	1,321	23,133	66,813	8,411	95	2,453	368	303	916	753	14,813
EST. NO. ACTIVE	0.6	16.9	3.5	1.5	6.8	69.7	13.2	33.5	27.0	20.5	20.7	
% STD. ERROR	87.6											
EST. % ACTIVE												
1 ENGINE: TOTAL	165,073	1,412	25,615	106,868	17,686	5,152	3,779	951	303	928	2,380	42,311
EST. NO. ACTIVE	0.6	16.1	3.4	1.1	4.4	3.8	10.4	18.2	27.0	20.3	12.3	
% STD. ERROR	79.6											
EST. % ACTIVE												
2 ENG: 1-6 SEATS	15,186	1,435	6,102	5,160	828	93	132	10	48	1,117	261	2,414
EST. NO. ACTIVE	1.6	14.3	5.8	6.5	17.4	63.7	44.6	123.7	52.3	17.2	33.9	
% STD. ERROR	86.3											
EST. % ACTIVE												
2 ENG: 7+ SEATS	7,421	1,086	2,146	1,399	87	141	96	80	236	1,808	342	1,471
EST. NO. ACTIVE	2.4	15.1	10.4	13.2	70.3	42.3	30.9	55.3	38.1	11.7	22.6	
% STD. ERROR	83.5											
EST. % ACTIVE												
2 ENGINE: TOTAL	22,606	2,521	8,248	6,559	915	234	228	90	284	2,925	603	3,886
EST. NO. ACTIVE	1.3	10.4	5.1	5.9	17.1	35.9	28.9	51.1	32.8	9.8	19.5	
% STD. ERROR	85.3											
EST. % ACTIVE												
PISTON: OTHER												
EST. NO. ACTIVE	94	0	0	3	3	16	4	0	56	0	12	88
% STD. ERROR	30.0	0.0	0.0	88.7	88.7	22.2	229.6	0.0	29.5	0.0	116.0	
EST. % ACTIVE	51.5											
PISTON: TOTAL	187,773	3,933	33,863	113,429	18,603	5,402	4,011	1,041	643	3,853	2,995	46,285
EST. NO. ACTIVE	0.6	8.8	2.9	1.1	4.2	3.9	9.9	17.2	19.4	8.9	10.6	
% STD. ERROR	80.2											
EST. % ACTIVE												

3.1 1990 GENERAL AVIATION NUMBER OF AIRCRAFT BY PRIMARY USE  
BY AIRCRAFT TYPE

PAGE 2 OF 3

ACTIVE USE

AIRCRAFT TYPE	TOTAL ACTIVE	CORP- ORATE	BUSI- NESS	PER- SONAL	INSTRUC- TIONAL	AERIAL APPL	AERIAL OBS	OTHER WORK	COMMUTER CARRIER	AIR TAXI	OTHER	IN- ACTIVE
FIXED WING - TURBOPROP 2 ENG: 1-12 SEATS												
EST. NO. ACTIVE	4,320	2,587	810	216	30	44	5	2	100	430	96	303
% STD. ERROR	1.6	5.3	13.9	31.1	80.6	65.6	149.8	193.5	40.3	19.4	46.5	
EST. % ACTIVE	93.4											
2 ENG: 13+ SEATS												
EST. NO. ACTIVE	937	270	24	8	8	0	17	11	339	116	144	352
% STD. ERROR	6.9	13.4	44.8	79.0	73.0	0.0	106.0	86.1	16.7	26.0	31.0	
EST. % ACTIVE	72.7											
2 ENGINE: TOTAL												
EST. NO. ACTIVE	5,257	2,856	834	224	38	44	22	13	439	547	240	655
% STD. ERROR	1.8	5.0	13.5	30.1	65.5	65.6	88.5	78.8	15.8	16.3	26.3	
EST. % ACTIVE	88.9											
TURBOPROP: OTHER												
EST. NO. ACTIVE	395	5	12	38	0	176	1	3	28	93	39	104
% STD. ERROR	7.0	64.2	70.7	37.2	0.0	3.9	232.3	147.7	45.1	6.5	36.5	
EST. % ACTIVE	79.1											
TURBOPROP: TOTAL												
EST. NO. ACTIVE	5,652	2,861	847	262	38	220	23	16	466	640	280	759
% STD. ERROR	1.7	5.0	13.4	26.3	65.5	13.5	84.1	70.3	15.1	13.9	23.2	
EST. % ACTIVE	88.2											
FIXED WING - TURBOJET												
2 ENGINE: TOTAL												
EST. NO. ACTIVE	3,950	2,938	329	113	1	0	17	0	0	343	209	355
% STD. ERROR	2.0	3.5	20.3	37.8	372.1	0.0	103.3	0.0	0.0	20.3	26.8	
EST. % ACTIVE	91.8											
TURBOJET: OTHER												
EST. NO. ACTIVE	425	266	11	3	3	0	0	0	0	31	112	161
% STD. ERROR	8.2	10.6	78.8	81.5	81.5	0.0	0.0	0.0	0.0	67.9	25.7	
EST. % ACTIVE	72.5											
TURBOJET: TOTAL												
EST. NO. ACTIVE	4,374	3,204	340	115	4	0	17	0	0	374	321	517
% STD. ERROR	2.0	3.3	19.8	37.0	140.4	0.0	103.3	0.0	0.0	19.4	19.6	
EST. % ACTIVE	89.4											

3.1 1990 GENERAL AVIATION NUMBER OF AIRCRAFT BY PRIMARY USE  
BY AIRCRAFT TYPE

PAGE 3 OF 3

ACTIVE USE

AIRCRAFT TYPE	TOTAL ACTIVE	CORP- ORATE	BUSI- NESS	PER- SONAL	INSTRUC- TIONAL	AERIAL APPL	AERIAL OBS	OTHER WORK	COMPUTER CARRIER	AIR TAXI	OTHER	IN- ACTIVE
FIXED WING: TOTAL												
EST. NO. ACTIVE	197,800	9,998	35,049	113,807	18,645	5,622	4,051	1,057	1,109	4,866	3,595	47,560
% STD. ERROR	0.5	3.9	2.8	1.1	4.2	3.8	9.8	16.9	12.9	7.4	9.2	
EST. % ACTIVE	80.6											
ROTORCRAFT												
PISTON												
EST. NO. ACTIVE	3,459	45	133	1,174	798	723	412	65	2	0	108	2,343
% STD. ERROR	5.3	78.3	32.5	9.5	13.8	14.7	26.0	61.4	165.3	0.0	56.6	
EST. % ACTIVE	59.6											
TURBINE												
EST. NO. ACTIVE	3,938	818	260	195	79	342	583	159	124	1,132	247	682
% STD. ERROR	3.1	17.9	36.2	43.6	66.9	24.1	24.0	32.2	29.2	15.1	28.4	
EST. % ACTIVE	85.2											
ROTORCRAFT: TOTAL												
EST. NO. ACTIVE	7,397	863	393	1,369	877	1,065	995	224	126	1,132	355	3,025
% STD. ERROR	3.0	17.4	26.4	10.2	13.9	12.6	17.7	29.0	28.8	15.1	26.2	
EST. % ACTIVE	71.0											
OTHER AIRCRAFT												
EST. NO. ACTIVE	7,032	45	55	5,459	367	0	256	245	7	190	408	3,530
% STD. ERROR	3.0	87.5	54.2	2.7	17.8	0.0	25.9	25.9	179.5	39.7	20.0	
EST. % ACTIVE	66.6											
TOTAL	212,229	10,906	35,496	120,636	19,889	6,687	5,302	1,525	1,242	6,188	4,358	54,115
EST. NO. ACTIVE												
% STD. ERROR	0.5	3.9	2.8	1.0	4.0	3.8	8.3	13.2	12.0	6.6	8.1	
EST. % ACTIVE	79.7											

NOTE: COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

ROW SUMMATIONS MAY DIFFER FROM PRINTED TOTALS BECAUSE SOME ACTIVE AIRCRAFT DID NOT REPORT USE.

3.2 1990 GENERAL AVIATION TOTAL HOURS FLOWN BY PRIMARY USE  
BY AIRCRAFT TYPE

PAGE 1 OF 3

AIRCRAFT TYPE	PRIMARY USE										TOTAL
	CORP-ORATE	BUSINESS	PERSONAL	INSTRUCTIONAL	AERIAL APPL	AERIAL OBS	OTHER WORK	COMPUTER CARRIER	AIR TAXI	OTHER	
FIXED WING											
FIXED WING - PISTON											
1 ENG: 1-3 SEATS											
EST. TOT. HOURS	12,891	258,385	2,582,795	3,860,913	1,545,440	326,379	294,478	0	1,666	117,868	9,000,817
% STD. ERROR	48.2	17.5	4.0	8.1	5.4	21.1	21.6	0.0	131.6	21.9	3.9
1 ENG: 4+ SEATS											
EST. TOT. HOURS	221,950	2,951,180	6,418,434	3,200,474	45,162	1,045,734	111,925	242,447	366,673	91,787	14,695,765
% STD. ERROR	19.0	4.6	3.2	9.4	84.6	16.7	36.9	26.3	21.7	25.6	2.7
1 ENGINE: TOTAL											
EST. TOT. HOURS	234,840	3,209,564	9,001,230	7,061,385	1,590,601	1,372,113	406,403	242,447	368,340	209,654	23,696,574
% STD. ERROR	18.1	4.4	2.6	6.2	5.7	13.3	19.1	26.3	21.6	16.5	2.2
2 ENG: 1-6 SEATS											
EST. TOT. HOURS	271,101	889,817	533,351	317,244	15,454	29,257	1,943	12,011	388,060	27,179	2,485,417
% STD. ERROR	17.4	8.9	10.1	18.9	64.3	49.3	127.0	55.2	18.7	52.7	4.7
2 ENG: 7+ SEATS											
EST. TOT. HOURS	334,933	353,298	140,612	23,657	39,216	31,805	13,350	154,112	622,210	20,917	1,734,110
%STD. ERROR	22.8	13.7	16.8	78.1	43.9	30.4	58.9	27.2	15.3	25.9	6.5
2 ENGINE: TOTAL											
EST. TOT. HOURS	606,035	1,243,115	673,963	340,901	54,670	61,062	15,292	166,124	1,010,269	48,096	4,219,527
% STD. ERROR	14.0	7.5	8.8	18.6	34.3	30.1	54.4	23.9	11.7	37.5	3.8
PISTON: OTHER											
EST. TOT. HOURS	0	0	26	62	1,393	425	0	53,894	0	906	56,706
% STD. ERROR	0.0	0.0	88.7	88.7	40.2	231.6	0.0	34.1	0.0	109.2	48.7
PISTON: TOTAL											
EST. TOT. HOURS	840,875	4,452,678	9,675,221	7,402,347	1,646,665	1,433,600	421,695	462,465	1,378,609	258,657	27,972,812
% STD. ERROR	11.1	3.8	2.5	5.9	5.7	12.8	18.5	17.5	10.2	15.0	2.0

3.2 1990 GENERAL AVIATION TOTAL HOURS FLOWN BY PRIMARY USE  
BY AIRCRAFT TYPE

PRIMARY USE

AIRCRAFT TYPE	CORPORATE	BUSINESS	PERSONAL	INSTRUCTIONAL	AERIAL APPL	AERIAL OBS	OTHER WORK	COMMUTER CARRIER	AIR TAXI	OTHER	TOTAL
FIXED WING - TURBOPROP											
2 ENG: 1-12 SEATS											
EST. TOT. HOURS	836,618	171,084	35,471	2,969	11,515	2,021	307	211,643	166,737	19,727	1,458,092
% STD. ERROR	6.5	15.9	29.6	80.6	65.6	149.9	193.5	40.0	19.9	53.5	6.6
2 ENG: 13+ SEATS											
EST. TOT. HOURS	116,146	7,549	1,882	1,592	0	5,145	10,889	657,310	83,809	8,616	892,939
% STD. ERROR	15.0	48.2	88.3	79.0	0.0	110.0	75.2	17.8	31.2	58.4	14.1
2 ENGINE: TOTAL											
EST. TOT. HOURS	952,765	178,632	37,354	4,561	11,515	7,166	11,196	868,954	250,546	28,343	2,351,032
% STD. ERROR	6.0	15.5	28.9	61.8	65.6	93.0	62.3	16.5	16.6	46.4	6.7
TURBOPROP: OTHER											
EST. TOT. HOURS	2,147	5,196	2,598	0	79,458	372	510	18,943	54,911	6,113	170,250
% STD. ERROR	73.8	82.3	42.0	0.0	16.3	232.3	147.7	48.8	9.6	44.0	10.9
TURBOPROP: TOTAL											
EST. TOT. HOURS	954,912	183,828	39,952	4,561	90,973	7,539	11,706	887,897	305,458	34,456	2,521,282
% STD. ERROR	6.0	15.3	25.7	61.8	18.5	87.9	48.6	15.7	14.4	38.2	6.3
FIXED WING - TURBOJET											
2 ENGINE: TOTAL											
EST. TOT. HOURS	1,024,547	91,163	22,369	771	0	2,833	0	0	135,085	108,019	1,384,788
% STD. ERROR	5.3	20.9	40.5	372.1	0.0	103.3	0.0	0.0	21.2	32.0	4.3
TURBOJET: OTHER											
EST. TOT. HOURS	103,507	5,394	5	96	0	0	0	0	12,280	5,489	126,772
% STD. ERROR	12.9	79.2	81.5	81.5	0.0	0.0	0.0	0.0	67.9	38.4	12.2
TURBOJET: TOTAL											
EST. TOT. HOURS	1,128,055	96,557	22,374	867	0	2,833	0	0	147,365	113,508	1,511,560
% STD. ERROR	5.0	20.3	39.6	135.1	0.0	103.3	0.0	0.0	20.3	22.9	4.1
FIXED WING: TOTAL											
EST. TOT. HOURS	2,923,841	4,733,063	9,737,548	7,407,776	1,737,638	1,443,972	433,401	1,350,362	1,831,432	406,620	32,005,650
% STD. ERROR	4.7	3.7	2.4	5.9	5.5	12.8	18.1	12.2	8.4	11.8	1.8

3.2 1990 GENERAL AVIATION TOTAL HOURS FLOWN BY PRIMARY USE  
BY AIRCRAFT TYPE

AIRCRAFT TYPE	PRIMARY USE										TOTAL
	CORP- ORATE	BUSI- NESS	PER- SONAL	INSTRUC- TIONAL	AERIAL APPL	AERIAL OBS	OTHER WORK	COMPUTER CARRIER	AIR TAXI	OTHER	
ROTORCRAFT											
PISTON											
EST. TOT. HOURS	11,715	21,822	45,420	376,151	165,638	129,040	7,718	190	0	17,081	774,774
% STD. ERROR	85.6	37.4	17.9	18.9	17.6	29.6	64.6	165.3	0.0	64.2	10.2
TURBINE											
EST. TOT. HOURS	215,068	24,770	35,578	20,851	124,365	287,145	155,892	93,508	593,753	66,362	1,617,292
% STD. ERROR	22.2	38.7	56.5	71.3	25.3	25.8	39.0	36.0	17.6	38.2	7.2
ROTORCRAFT: TOTAL											
EST. TOT. HOURS	226,783	46,592	80,997	397,002	290,003	416,185	163,610	93,698	593,753	83,444	2,392,066
% STD. ERROR	21.5	28.7	17.5	18.6	14.2	19.2	34.9	35.7	17.6	32.6	5.9
OTHER AIRCRAFT											
EST. TOT. HOURS	4,817	4,464	229,053	42,289	0	30,526	22,443	360	10,712	24,130	368,804
% STD. ERROR	87.5	61.8	5.9	22.6	0.0	45.5	36.9	179.5	43.6	24.9	7.0
TOTAL											
EST. TOT. HOURS	3,155,441	4,784,119	10,047,598	7,847,068	2,027,641	1,890,682	619,454	1,444,419	2,435,907	514,194	34,766,520
% STD. ERROR	4.6	3.6	2.4	5.7	5.2	10.6	14.2	11.5	7.4	10.3	1.7

NOTE: COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

ROW SUMMATIONS MAY DIFFER FROM PRINTED TOTALS BECAUSE SOME ACTIVE AIRCRAFT DID NOT REPORT USE.

## 3.3 1990 GENERAL AVIATION NAUTICAL MILES FLOWN BY PRIMARY USE BY AIRCRAFT TYPE

PAGE 1 OF 2

## NAUTICAL MILES (IN THOUSANDS)

AIRCRAFT TYPE	CORP ORATE	BUSI- NESS	PER- SONAL	INSTRUC- TIONAL	AERIAL APPL	AERIAL OBS	OTHER WORK	COMPUTER CARRIER	AIR TAXI	OTHER	TOTAL
FIXED WING											
FIXED WING - PISTON											
1 ENG: 1-3 SEATS	889	22,788	228,461	306,748	136,955	26,098	24,730	0	114	9,243	756,026
1 ENG: 4+ SEATS	19,183	354,332	696,039	278,573	3,895	103,596	12,974	25,935	38,442	8,277	1,541,247
1 ENGINE: TOTAL	20,072	377,120	924,501	585,321	140,850	129,694	37,704	25,935	38,556	17,520	2,297,273
2 ENG: 1-6 SEATS	36,739	131,369	80,668	31,404	2,512	4,284	332	1,663	61,113	3,501	353,584
2 ENG: 7+ SEATS	46,256	53,119	22,210	2,400	6,049	5,264	2,103	22,981	93,411	2,944	256,737
2 ENGINE: TOTAL	82,996	184,488	102,878	33,804	8,561	9,547	2,435	24,643	154,525	6,445	610,322
PISTON OTHER	0	0	5	7	260	99	0	11,386	0	136	11,893
PISTON TOTAL	103,068	561,607	1,027,383	619,132	149,671	139,340	40,139	61,964	193,080	24,102	2,919,488
FIXED WING - TURBOPROP											
2 ENG: 1-12 SEATS	158,037	38,022	7,237	562	2,577	450	56	42,824	34,146	2,773	286,685
2 ENG: 13+ SEATS	23,459	1,932	426	279	0	1,022	1,423	132,585	17,490	1,215	179,831
2 ENGINE: TOTAL	181,496	39,954	7,663	841	2,577	1,472	1,479	175,408	51,636	3,989	466,516
TURBOPROP: OTHER	344	966	456	0	12,057	74	96	3,368	9,319	776	27,456
TURBOPROP: TOTAL	181,840	40,921	8,119	841	14,635	1,546	1,575	178,776	60,955	4,764	493,971



3.3 1990 GENERAL AVIATION NAUTICAL MILES FLOWN BY PRIMARY USE BY AIRCRAFT TYPE

PAGE 2 OF 2

NAUTICAL MILES (IN THOUSANDS)

AIRCRAFT TYPE	CORPORATE	BUSINESS	PERSONAL	INSTRUMENTAL	AERIAL APPL	AERIAL OBS	OTHER WORK	COMPUTER CARRIER	AIR TAXI	OTHER	TOTAL
FIXED WING - TURBOJET											
2 ENGINE: TOTAL	402,518	34,947	9,437	166	0	0	0	0	55,344	44,019	546,431
TURBOJET: OTHER	48,498	2,566	3	36	0	0	0	0	5,713	2,633	59,449
TURBOJET: TOTAL	451,016	37,513	9,440	203	0	0	0	0	61,057	46,652	605,880
FIXED WING: TOTAL	735,923	640,041	1,044,942	620,175	164,306	140,887	41,714	240,740	315,092	75,518	4,019,339
ROTORCRAFT											
PISTON	620	1,447	2,585	18,701	10,488	7,599	352	13	0	931	42,737
TURBINE	24,161	2,511	3,834	1,995	13,325	29,508	16,168	4,455	26,275	4,282	126,513
ROTORCRAFT: TOTAL	24,780	3,958	6,419	20,696	23,812	37,107	16,520	4,468	26,275	5,213	169,249
OTHER AIRCRAFT	49	59	6,147	1,390	0	0	0	0	0	268	7,914
TOTAL	760,753	644,058	1,057,508	642,262	188,119	177,994	58,234	245,209	341,367	81,000	4,196,503

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

## CHAPTER IV

### FLYING CONDITIONS

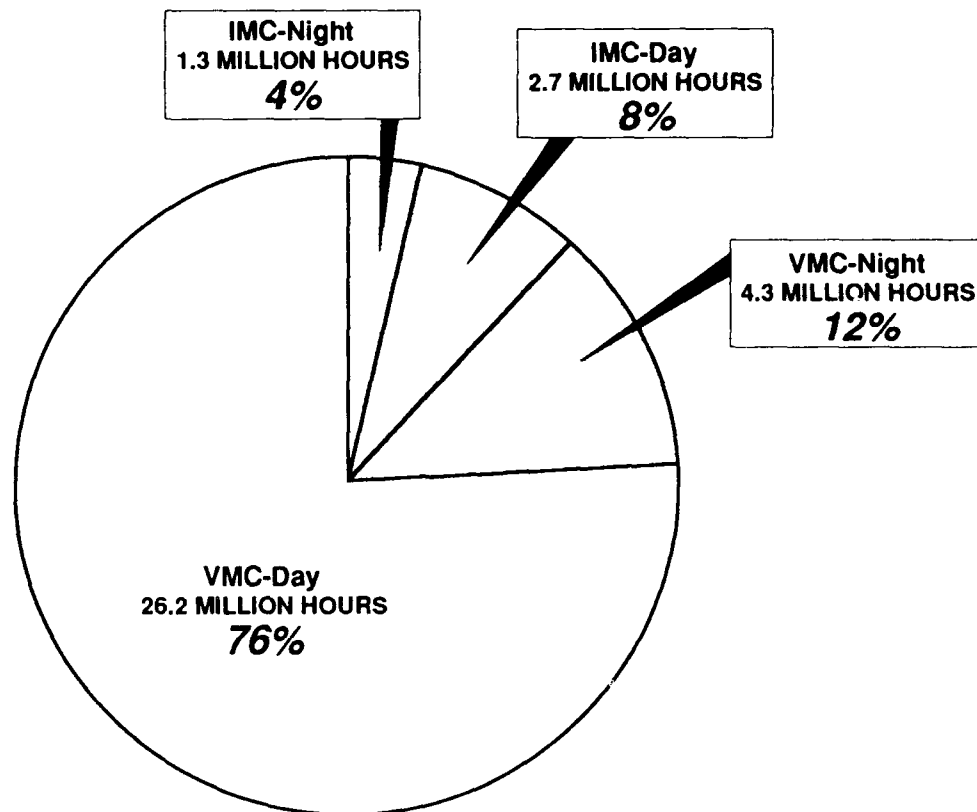
This chapter presents statistics on the meteorological conditions under which the general aviation fleet flies. Tables 4.1, 4.2, and 4.3 contain the number of active general aviation aircraft and total hours flown by aircraft type during the day and night, by aircraft type under Visual Meteorological Conditions (VMC), and by aircraft type under Instrument Meteorological Conditions (IMC), respectively. Table 4.4 presents total day and night hours by region of based aircraft, while Tables 4.5 and 4.6 look at active aircraft and total hours flown by region under VMC and IMC, respectively. The final two tables in this chapter provide breakdowns by SDR Manufacturer/Model (M/M) Group; Table 4.7 gives the number of active general aviation aircraft and total hours flown during the day and night by SDR M/M Group, and Table 4.8 looks at the number of active general aviation aircraft and total hours flown under both VMC and IMC conditions by SDR M/M Group.



Figure 4.1, 1990 General Aviation Total Hours Flown By Weather and Light Conditions, graphically depicts the findings of the above listed tables, proportionally showing the number of hours flown under VMC and IMC conditions by day and by night.

Some highlights of this chapter include:

- o Approximately 83 percent of general aviation flying takes place during the day.
- o Fixed wing, single engine piston aircraft spend 92 percent of their flying time in VMC. Overall, 88 percent of VMC flying takes place during the day.
- o Fixed wing piston aircraft with two engines, turboprops, and turbojets spend a considerable amount of time flying in IMC conditions, approximately 23, 35, and 35 percent, respectively. IMC flying takes place 69 percent of the time during the day.
- o Overall, these tables indicate that in 1990 about 76 percent of the general aviation fleet's total hours were flown in VMC conditions during the day. The remainder of the total hours flown by the general aviation fleet were divided as follows: 12 percent VMC night, 8 percent IMC day, and 4 percent IMC night.

**Figure 4.1**  
**1990 GENERAL AVIATION TOTAL HOURS FLOWN**  
**BY WEATHER AND LIGHT CONDITIONS**



KEY	
	= Day
	= Night
IMC = Instrument Meteorological Conditions	
VMC = Visual Meteorological Conditions	

**SOURCE:** Tables 4.2 and 4.3

4.1 1990 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN  
BY DAY/NIGHT BY AIRCRAFT TYPE

AIRCRAFT TYPE	DAY TOTAL				NIGHT TOTAL			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
FIXED WING								
FIXED WING - PISTON								
1 ENG: 1-3 SEATS	60,433	0.1	8,048,854	3.6	24,014	2.7	951,594	12.1
1 ENG: 4+ SEATS	104,449	0.1	12,479,516	2.5	75,213	1.2	2,022,323	4.8
1 ENGINE: TOTAL	164,882	0.1	20,528,366	2.1	99,227	1.1	2,973,917	5.1
2 ENG: 1-6 SEATS	15,180	0.0	1,835,776	4.0	12,920	2.0	615,064	9.6
2 ENG: 7+ SEATS	7,421	0.0	1,207,414	5.8	6,354	2.5	502,399	11.5
2 ENGINE: TOTAL	22,601	0.0	3,043,190	3.3	19,274	1.6	1,117,463	7.4
PISTON: OTHER	94	0.5	44,025	28.6	61	33.8	12,905	41.2
PISTON: TOTAL	187,577	0.0	23,615,590	1.8	118,562	1.0	4,104,285	4.2
FIXED WING - TURBOPROP								
2 ENG: 1-12 SEATS	4,319	0.1	1,025,609	4.9	4,029	1.9	374,669	10.1
2 ENG: 13+ SEATS	937	0.1	641,991	11.4	798	3.2	247,293	13.7
2 ENGINE: TOTAL	5,256	0.1	1,667,600	5.3	4,827	1.7	621,962	8.2
TURBOPROP: OTHER	395	0.1	109,003	12.4	216	13.9	65,538	24.0
TURBOPROP: TOTAL	5,650	0.1	1,776,603	5.1	5,044	1.7	687,500	7.7

4.1 1990 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN  
BY DAY/NIGHT BY AIRCRAFT TYPE

AIRCRAFT TYPE	DAY TOTAL				NIGHT TOTAL			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
FIXED WING - TURBOJET								
2 ENGINE: TOTAL	3,950	0.0	1,000,668	4.2	3,815	1.3	400,629	6.3
TURBOJET: OTHER	425	0.1	85,305	11.4	343	8.4	41,063	15.1
TURBOJET: TOTAL	4,374	0.0	1,085,973	4.0	4,158	1.4	441,692	5.9
FIXED WING: TOTAL	197,601	0.0	26,478,164	1.7	127,764	0.9	5,233,478	3.5
ROTORCRAFT								
PISTON	3,377	1.6	642,194	10.0	1,589	8.6	133,148	25.5
TURBINE	3,876	0.8	1,401,958	7.2	2,646	6.7	211,881	18.0
ROTORCRAFT: TOTAL	7,253	0.8	2,044,152	5.9	4,235	5.3	345,029	14.8
OTHER AIRCRAFT	7,032	0.0	362,950	6.5	160	33.2	2,269	70.4
TOTAL	211,887	0.1	28,885,278	1.6	132,159	0.9	5,580,775	3.4

NOTE: COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

4.2 1990 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN UNDER VMC CONDITIONS  
BY DAY/NIGHT BY AIRCRAFT TYPE

PAGE 1 OF 2

AIRCRAFT TYPE	VMC DAY			VMC NIGHT			VMC TOTAL		
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT
<b>FIXED WING</b>									
<b>FIXED WING - PISTON</b>									
1 ENG: 1-3 SEATS	60,379	0.1	7,933,860	3.6	23,659	2.7	912,629	12.4	60,482
1 ENG: 4+ SEATS	104,200	0.1	11,388,733	2.5	73,789	1.2	1,683,923	5.0	104,456
1 ENGINE: TOTAL	164,579	0.1	19,322,588	2.1	97,448	1.1	2,596,552	5.4	164,939
2 ENG: 1-6 SEATS	15,042	0.5	1,465,300	4.4	11,950	2.5	411,163	8.8	15,081
2 ENG: 7+ SEATS	7,346	0.7	963,792	6.5	5,999	3.1	334,704	14.0	7,346
2 ENGINE: TOTAL	22,388	0.4	2,429,092	3.7	17,949	2.0	745,867	7.9	22,428
PISTON: OTHER	90	4.0	43,119	9.4	57	35.9	12,220	43.6	90
PISTON: TOTAL	187,057	0.1	21,794,800	1.9	115,454	1.0	3,354,637	4.6	187,456
<b>FIXED WING - TURBOPROP</b>									
2 ENG: 1-12 SEATS	4,116	1.5	754,893	5.0	3,525	3.3	230,544	9.6	4,116
2 ENG: 13+ SEATS	803	5.7	352,913	15.1	632	8.2	111,520	16.3	803
2 ENGINE: TOTAL	4,919	1.5	1,107,805	5.9	4,157	3.0	342,064	8.4	4,919
TURBOPROP: OTHER	395	0.1	102,999	13.1	216	13.9	51,148	30.7	395
TURBOPROP: TOTAL	5,313	1.4	1,210,805	5.5	4,373	3.0	393,212	8.3	5,313

4.2 1990 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN UNDER VMC CONDITIONS  
BY DAY/NIGHT BY AIRCRAFT TYPE

PAGE 2 OF 2

AIRCRAFT TYPE	VMC DAY				VMC NIGHT				VMC TOTAL			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
FIXED WING - TURBOJET												
2 ENGINE: TOTAL	3,513	2.1	698,339	5.7	3,220	2.9	226,963	8.0	3,542	2.0	925,031	5.4
TURBOJET: OTHER	382	6.0	54,377	16.9	267	12.2	19,881	18.7	382	6.0	74,258	15.4
TURBOJET: TOTAL	3,895	2.0	752,716	5.4	3,487	2.9	246,844	7.5	3,924	1.9	999,289	5.1
FIXED WING: TOTAL	196,265	0.1	23,758,330	1.8	123,315	1.0	3,994,694	4.0	196,694	0.1	27,747,624	1.8
ROTORCRAFT												
PISTON	3,377	1.6	642,194	10.0	1,589	8.6	133,148	25.5	3,459	0.0	775,358	8.8
TURBINE	3,876	0.8	1,392,627	7.3	2,606	6.9	198,648	18.3	3,938	0.0	1,594,099	6.7
ROTORCRAFT: TOTAL	7,253	0.8	2,034,821	5.9	4,195	5.4	331,796	15.0	7,397	0.0	2,369,457	5.3
OTHER AIRCRAFT	7,032	0.0	362,651	6.5	155	33.9	1,886	60.6	7,032	0.0	364,557	6.5
TOTAL	210,550	0.1	26,155,804	1.7	127,664	0.9	4,328,373	3.8	211,123	0.1	30,481,642	1.7

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

4.3 1990 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN UNDER IMC CONDITIONS  
BY DAY/NIGHT BY AIRCRAFT TYPE

PAGE 1 OF 2

AIRCRAFT TYPE	IMC DAY				IMC NIGHT				IMC TOTAL			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
FIXED WING												
FIXED WING - PISTON												
1 ENG: 1-3 SEATS	4,041	9.6	117,811	25.8	2,038	14.6	36,683	25.0	4,293	9.4	154,061	23.1
1 ENG: 4+ SEATS	46,012	2.1	1,085,297	5.7	23,065	3.6	336,374	8.7	46,808	2.1	1,422,900	6.0
1 ENGINE: TOTAL	50,053	2.1	1,203,108	5.7	25,103	3.5	373,057	8.2	51,101	2.1	1,576,961	5.9
2 ENG: 1-6 SEATS	12,167	2.3	370,474	5.8	9,508	3.6	203,088	15.1	12,288	2.2	573,254	7.8
2 ENG: 7+ SEATS	6,192	2.4	243,462	9.6	5,292	3.8	168,012	12.3	6,231	2.3	411,327	9.7
2 ENGINE: TOTAL	18,359	1.7	613,936	5.2	14,800	2.7	371,100	10.0	18,519	1.7	984,581	6.1
PISTON: OTHER	27	63.6	906	78.7	8	130.6	685	115.6	27	63.6	1,591	81.8
PISTON: TOTAL	68,439	1.6	1,817,950	4.2	39,911	2.4	744,842	6.4	69,647	1.6	2,563,134	4.3
FIXED WING - TURBOPROP												
2 ENG: 1-12 SEATS	4,198	1.3	270,277	9.2	3,961	2.1	143,705	13.2	4,205	1.3	420,044	10.2
2 ENG: 13+ SEATS	784	5.2	303,510	25.1	726	6.5	140,105	20.5	802	5.1	442,142	21.9
2 ENGINE: TOTAL	4,982	1.4	573,787	13.9	4,687	2.0	283,810	12.1	5,007	1.3	862,185	12.3
TURBOPROP: OTHER	144	10.1	6,004	10.1	134	10.6	14,390	12.7	144	10.1	20,394	11.1
TURBOPROP: TOTAL	5,126	1.4	579,791	13.8	4,821	2.0	298,200	11.6	5,151	1.3	882,579	12.0



4.3 1990 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN UNDER IMC CONDITIONS  
BY DAY/NIGHT BY AIRCRAFT TYPE

PAGE 2 OF 2

AIRCRAFT TYPE	IMC DAY				IMC NIGHT				IMC TOTAL			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
FIXED WING - TURBOJET												
2 ENGINE: TOTAL	3,839	1.0	303,751	6.8	3,776	1.4	174,071	7.9	3,877	0.8	478,621	6.0
TURBOJET: OTHER	351	8.0	30,928	17.9	307	9.9	21,182	21.6	351	8.0	52,110	18.6
TURBOJET: TOTAL	4,190	1.1	334,679	6.4	4,082	1.5	195,253	7.4	4,228	1.0	530,731	5.7
FIXED WING: TOTAL	77,755	1.4	2,732,420	4.1	48,815	2.0	1,238,295	4.9	79,027	1.4	3,976,446	3.9
ROTORCRAFT												
PISTON (*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)
TURBINE	413	22.1	9,297	21.5	293	24.6	13,128	41.0	493	20.7	22,426	26.1
ROTORCRAFT: TOTAL	413	22.1	9,297	21.5	293	24.6	13,128	41.0	493	20.7	22,426	26.1
OTHER AIRCRAFT	7	143.7	298	253.0	5	187.0	383	262.9	9	123.2	681	258.7
TOTAL	78,176	1.4	2,742,016	4.1	49,113	2.0	1,251,806	4.9	79,528	1.4	3,999,553	3.9

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

(\*) ROTORCRAFT PISTON DATA WERE COLLECTED BUT ARE NOT INCLUDED BECAUSE THE DATA COLLECTED WERE NOT SUFFICIENT TO PROVIDE REASONABLE ESTIMATES.

4.4 1990 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN  
BY DAY/NIGHT BY REGION OF BASED AIRCRAFT

REGION	DAY TOTAL				NIGHT TOTAL			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
ALASKAN	7,056	6.5	1,025,874	14.8	2,819	10.9	36,415	26.3
CENTRAL	11,791	5.5	1,297,324	8.1	7,075	7.3	228,777	14.7
EASTERN	24,541	3.7	3,107,061	6.9	16,503	4.6	599,820	12.2
GREAT LAKES	37,399	2.9	4,473,293	5.1	23,543	3.8	974,820	7.9
NEW ENGLAND	8,670	6.5	1,019,596	10.5	5,539	8.5	190,661	14.7
NORTHWEST MT.	21,657	4.0	2,873,304	7.0	12,381	5.4	421,322	15.5
SOUTHERN	35,228	3.0	5,142,428	5.7	23,205	3.8	1,081,041	7.7
SOUTHWESTERN	28,295	3.4	4,344,330	6.3	16,948	4.5	714,064	11.7
WESTERN-PACIFIC	37,236	2.9	5,428,120	6.2	24,161	3.7	1,348,863	12.8
TOTAL	211,872	1.2	28,711,348	2.4	132,174	1.6	5,595,788	4.4

NOTE: COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

4.5 1990 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN UNDER VMC CONDITIONS  
BY DAY/NIGHT BY REGION OF BASED AIRCRAFT

PAGE 1 OF 1

REGION	VMC DAY			VMC NIGHT			VMC TOTAL		
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN
ALASKAN	7,056	6.5	1,012,148	2,748	11.0	30,82f	7,056	6.5	1,042,985
CENTRAL	11,743	5.5	1,189,605	6,919	7.4	183,388	11,773	5.5	1,374,745
EASTERN	24,336	3.7	2,735,093	16,070	4.7	448,463	24,355	3.7	3,184,815
GREAT LAKES	37,111	2.9	3,855,746	22,877	3.9	680,163	37,170	2.9	4,536,694
NEW ENGLAND	8,638	6.5	911,592	5,481	8.6	135,347	8,638	6.5	1,048,818
NORTHWEST MT.	21,484	4.0	2,658,490	11,851	5.6	305,093	21,528	4.0	2,969,098
SOUTHERN	34,882	3.0	4,525,281	22,186	3.9	814,022	35,048	3.0	5,338,604
SOUTHWESTERN	28,120	3.4	4,066,374	16,064	4.7	579,244	28,206	3.4	4,644,594
WESTERN-PACIFIC	37,137	2.9	5,020,618	23,625	3.7	1,155,462	37,316	2.9	6,187,526
TOTAL	210,506	1.2	25,974,920	127,822	1.7	4,331,707	211,090	1.2	30,327,896
			2.4			4.9			2.4

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

4.6 1990 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN UNDER IMC CONDITIONS  
BY DAY/NIGHT BY REGION OF BASED AIRCRAFT

PAGE 1 OF 1

REGION	IMC DAY			IMC NIGHT			IMC TOTAL		
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN
ALASKAN	740	22.6	13,723	272	38.4	5,533	748	22.4	19,256
CENTRAL	3,821	9.7	107,232	2,542	11.8	45,381	3,913	9.6	152,825
EASTERN	10,466	5.8	372,437	6,126	7.4	151,788	10,630	5.7	523,786
GREAT LAKES	14,746	4.8	613,161	9,871	5.8	292,495	14,801	4.8	905,516
NEW ENGLAND	3,036	11.3	108,342	2,072	13.6	54,637	3,256	11.0	162,613
NORTHWEST MT.	6,169	7.6	212,857	3,267	10.4	116,213	6,248	7.6	329,033
SOUTHERN	15,890	4.5	616,463	10,510	5.5	266,201	16,000	4.5	881,694
SOUTHWESTERN	10,334	5.7	278,092	6,245	7.1	135,141	10,574	5.6	413,870
WESTERN-PACIFIC	12,819	5.1	404,709	8,231	6.3	191,388	13,183	5.0	600,005
TOTAL	78,023	2.1	2,727,017	49,137	2.6	1,258,777	79,354	2.1	3,988,602
									5.2

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

4.7 1990 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN  
BY DAY/NIGHT BY SDR MANUFACTURER/MODEL GROUP

SDR MANUFACTURER/ MODEL GROUP	DAY			NIGHT		
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
OTHER 1	9,563	0.0	623,421	11.5	1,594	17.2
OTHER 2	1,221	0.0	132,601	17.9	575	16.2
OTHER 3	121	5.8	11,526	83.7	85	30.1
OTHER 4	118	0.4	10,649	37.8	49	41.9
OTHER 5	69	0.7	42,046	29.9	47	42.8
OTHER 6	396	0.1	139,166	28.2	327	12.2
OTHER 7	182	0.3	172,920	38.1	175	10.1
OTHER 8	109	0.5	26,006	28.0	49	31.8
OTHER 9	335	0.1	66,513	20.8	332	2.7
OTHER 10	196	0.3	25,833	31.9	129	22.4
OTHER 11	893	0.1	31,317	43.0	44	106.6
OTHER 12	223	0.2	136,650	42.9	167	20.3
OTHER 13	2,226	0.0	118,614	16.4	43	73.8
ADAMS A50S	88	0.6	1,827	16.4	2	213.2
AERORSJ2	14	3.4	460	41.1	4	80.4
AEROSPAS355	103	0.5	8,231	46.5	21	125.7
AEROSPAS316	78	0.6	18,892	15.4	55	30.1
AEROSPAS365	28	1.8	5,983	17.7	28	1.8
AGUSTA205	22	2.3	7,704	100.6	0	0.0
AGUSTAA109	54	0.9	6,508	27.1	54	0.9
AIRPTSA	126	0.4	15,242	18.8	11	55.4
					64	53.7

4.7 1990 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN  
BY DAY/NIGHT BY SDR MANUFACTURER/MODEL GROUP

SDR MANUFACTURER/ MODEL GROUP	DAY				NIGHT			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
AIRSPC18	14	3.6	690	23.6	9	26.2	40	35.4
AIRTRCAT300	403	0.1	163,620	11.0	109	48.2	4,883	74.3
AIRTRCAT400	111	0.4	59,979	20.5	39	41.6	965	84.7
AIRTRCAT500	73	0.7	29,173	15.8	33	46.9	1,456	118.1
AMD FALC10	110	0.5	30,824	10.6	110	0.5	10,293	15.2
AMD FALC20	169	0.3	46,980	16.4	160	6.6	19,677	25.3
AMD FALC50	113	0.4	33,139	10.3	113	0.4	17,072	16.2
ARCTICS1A	31	1.6	1,371	29.1	3	79.0	47	81.7
ARCTICS1B1	11	4.2	334	20.4	1	95.4	1	96.0
ARONCA15	109	0.5	5,613	25.2	40	27.1	259	36.7
ARONCA58	90	0.6	4,357	17.8	0	0.0	0	0.0
ARONCA65	90	0.6	4,454	21.7	0	0.0	0	0.0
ARONCAC3	14	3.5	62	32.7	0	0.0	0	0.0
AVIANWFALCON	6	8.0	158	17.4	0	0.0	0	0.0
AVIANWSKYHWK	36	1.4	894	23.3	1	170.9	2	177.2
AYRES S2	676	0.1	192,863	13.7	237	31.9	100,586	33.9
BAG B206	21	2.3	1,301	29.8	19	30.0	128	39.9
BAG DH125	71	0.7	18,049	9.0	71	0.7	9,941	15.7
BALWKSFIREFY	1,381	0.0	42,580	15.2	0	0.0	0	0.0
BBAVIA11	397	0.1	16,075	15.3	55	52.0	1,196	64.3
BBAVIA7	2,041	0.0	116,162	11.7	239	36.4	3,423	66.8

4.7 1990 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN BY DAY/NIGHT BY SDR MANUFACTURER/MODEL GROUP

SDR MANUFACTURER/ MODEL GROUP	DAY			NIGHT				
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR		
BBAVIA8	199	0.3	34,028	25.1	37	34.8	975	45.5
BEECH 100	222	0.2	46,598	12.6	222	0.2	18,542	31.1
BEECH 17	131	0.4	8,477	22.2	30	77.8	113	84.2
BEECH 18	593	0.1	81,912	36.0	352	21.0	19,512	59.2
BEECH 1900	128	0.4	188,557	9.6	128	0.4	102,409	18.8
BEECH 200	804	0.1	230,373	7.7	785	2.6	70,191	12.7
BEECH 23	2,509	0.0	246,344	11.2	1,849	6.5	27,987	22.0
BEECH 300	134	0.4	34,903	9.2	126	5.7	15,450	19.7
BEECH 33	2,022	0.0	247,240	10.2	1,655	4.8	43,287	18.9
BEECH 35	5,908	0.8	587,038	9.8	4,134	5.6	138,601	23.7
BEECH 36	2,290	0.0	311,620	6.6	1,845	5.8	59,160	18.8
BEECH 45	290	0.2	26,074	20.8	175	21.2	1,924	72.5
BEECH 50	168	0.3	6,565	68.2	80	53.8	3,007	58.5
BEECH 55	2,069	0.0	249,589	10.3	1,870	4.1	70,610	14.1
BEECH 56	45	5.8	2,312	13.9	39	9.2	1,472	30.9
BEECH 58	1,350	0.0	210,146	13.8	1,247	4.6	94,812	34.3
BEECH 60	363	0.1	40,876	12.8	363	0.1	6,797	24.2
BEECH 65	107	0.5	6,194	33.8	82	22.5	1,213	56.0
BEECH 76	233	0.2	46,415	19.1	223	4.9	16,987	30.3
BEECH 77	173	0.3	31,381	33.5	131	15.6	2,743	42.2
BEECH 80	116	0.4	11,468	36.8	80	15.9	2,680	46.8

4.7 1990 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN  
BY DAY/NIGHT BY SDR MANUFACTURER/MODEL GROUP

SDR MANUFACTURER/ MODEL GROUP	DAY				NIGHT			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
BEECH 90	1,027	0.6	221,937	6.2	905	5.2	85,617	11.9
BEECH 95	412	0.1	36,031	19.6	319	14.5	7,742	30.9
BEECH 99	52	1.0	29,271	23.8	52	1.0	11,561	37.6
BELL 204	20	2.4	6,464	13.6	18	22.3	322	20.3
BELL 206	1,782	0.0	666,017	9.9	1,138	13.4	51,223	39.9
BELL 212	106	0.5	44,855	46.9	66	46.0	972	45.9
BELL 222	40	1.2	9,929	17.7	40	1.2	4,203	30.1
BELL 412	49	1.0	9,427	49.9	49	1.0	8,262	61.6
BELL 47	463	11.4	82,864	25.3	203	35.0	11,633	43.9
BLANCA11	55	0.9	2,079	20.6	0	0.0	0	0.0
BLANCA1413	77	0.6	4,285	21.3	5	123.7	15	127.6
BLANCA1419	191	0.3	6,942	24.6	67	33.9	543	53.8
BLANCA17	840	0.1	61,222	12.0	513	15.6	17,626	29.9
BLANCA7	1,769	0.0	114,797	7.7	600	12.6	6,711	24.1
BLANCA8	422	0.1	32,650	19.5	182	30.8	1,771	41.8
BNORM BN2	31	1.6	22,379	20.0	21	34.5	5,494	39.6
BOEING727	25	2.0	10,102	27.5	25	2.0	4,766	16.7
BOEING75	1,007	0.0	58,096	15.5	37	70.0	334	121.3
BOLRMS105	147	0.3	91,011	22.6	93	28.5	5,961	44.0
BOLRMS117	68	0.7	11,997	17.1	58	14.3	8,495	22.1
BRAERODH125	129	0.4	51,345	10.1	129	0.4	10,644	17.2



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SDR MANUFACTURER/ MODEL GROUP	DAY			NIGHT			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	HOURS FLOWN	PERCENT STANDARD ERROR
BRASOVIS28	36	1.4	2,559	19.1	0	0	0.0
BRWSTFLEET2	16	3.0	267	60.1	1	12	146.0
BRWSTFLEET7	11	4.3	414	27.4	0	0	0.0
BOKER 131	16	3.1	1,004	24.8	2	23	93.8
CAMRONMODEL0	41	1.2	2,050	15.3	5	259	74.7
CAMRONMODEL0	140	0.4	3,762	25.4	2	3	217.4
CASA C212	40	1.2	15,079	24.7	38	6,170	33.7
CESSNA120	643	0.1	48,793	16.6	312	4,475	49.5
CESSNA140	1,785	0.0	97,306	12.3	864	6,991	30.3
CESSNA150	16,332	0.4	3,714,749	6.9	11,538	651,852	16.7
CESSNA170	1,980	0.0	127,734	10.9	1,098	6,026	22.5
CESSNA172	22,342	0.0	3,552,480	6.0	16,854	629,914	11.2
CESSNA175	1,039	0.0	59,086	14.8	600	6,359	30.3
CESSNA177	2,445	0.0	205,025	9.1	1,906	40,986	16.8
CESSNA180	2,458	0.0	213,400	13.7	1,122	20,638	31.9
CESSNA182	12,360	0.0	1,322,321	6.1	8,522	157,228	12.1
CESSNA185	1,464	0.0	199,311	10.4	869	12,159	30.1
CESSNA188	1,319	0.0	303,452	12.0	97	2,102	93.0
CESSNA190	46	1.1	1,325	22.2	8	30	77.4
CESSNA195	286	0.2	18,561	14.5	167	6,589	53.0
CESSNA205	195	0.3	13,730	23.4	150	1,904	29.8

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4.7 1990 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN  
BY DAY/NIGHT BY SDR MANUFACTURER/MODEL GROUP

SDR MANUFACTURER/ MODEL GROUP	DAY				NIGHT			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
CESSNA501	236	0.2	42,402	13.8	236	0.2	16,215	24.6
CESSNA650	135	0.4	44,079	10.5	135	0.4	18,103	22.1
CESSNAT50	16	3.1	507	32.0	4	60.3	32	81.4
CESSNAUC94	7	6.3	96	22.8	0	0.0	0	0.0
CHILD S1	47	1.1	2,234	17.4	0	0.0	0	0.0
CHILD S2	140	0.4	8,096	20.2	0	0.0	0	0.0
CHRIS HUSKY	78	0.6	6,353	17.4	32	24.7	203	37.4
CNDAIRCL600	139	0.4	52,350	14.1	139	0.4	26,575	15.4
CNTRAR101	31	1.6	2,186	29.0	0	0.0	0	0.0
COMWTH185	39	1.3	3,232	29.6	23	37.5	128	45.0
CONAERLA4	277	7.1	15,217	28.3	74	44.3	837	55.8
CURTISJR	4	12.4	19	32.4	0	0.0	0	0.0
CURTISTRVAIR	38	1.3	2,695	24.8	5	62.9	30	77.1
CVAC 240	3	16.2	181	0.3	3	16.2	336	0.1
CVAC 440	4	12.0	634	0.1	4	12.0	63	0.8
CVAC BT13	52	0.9	2,145	15.5	5	58.6	86	72.8
CVAC STC580	33	1.5	14,660	21.9	33	1.5	1,153	40.1
DART G	7	6.5	256	14.0	0	0.0	0	0.0
DHAV DHC1	62	0.8	2,707	17.6	10	47.4	69	61.9
DHAV DHC2	145	0.3	53,193	12.8	64	42.5	1,298	80.5
DHAV DHC4	31	1.6	1,976	0.0	31	1.6	659	0.1

4.7 1990 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN  
BY DAY/NIGHT BY SDR MANUFACTURER/MODEL GROUP

SDR MANUFACTURER/ MODEL GROUP	DAY				NIGHT			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
DHAV DHC6	72	0.7	46,182	43.3	36	39.6	6,126	69.3
DHAVXDH82	53	0.9	1,724	22.9	2	137.6	17	147.5
DORNERDO228	29	1.7	33,350	0.0	29	1.7	33,350	0.0
DOUG A26	18	2.7	877	25.7	4	122.5	4	122.5
DOUG DC3	221	0.2	49,985	22.1	86	60.3	7,168	76.3
DOUG DC4	24	2.0	1,979	30.4	14	33.0	393	79.2
EAGLE DW	51	1.0	13,056	14.9	13	61.5	76	77.0
EAGLERAX7	13	3.7	420	9.9	0	0.0	0	0.0
EAGLEBC7	24	2.0	577	28.7	0	0.0	0	0.0
EIRVON20	108	0.1	6,852	21.0	0	0.0	0	0.0
EMB 110	22	2.2	32,165	15.1	22	2.2	7,785	23.8
EMB 120	42	1.2	60,074	21.0	42	1.2	42,400	54.2
ENSTRMF28	316	0.2	41,535	14.7	208	9.6	11,605	44.6
FLEET 16B	19	2.5	455	31.1	4	79.6	11	77.9
FRCHLD24	130	0.4	2,794	26.4	6	112.6	16	117.9
FRCHLDF27	18	2.8	3,424	8.7	14	26.9	2,307	35.4
FRCHLDM62	139	0.4	6,960	37.8	6	131.5	47	139.8
GALAXYCX7	50	1.0	1,651	16.2	2	91.4	2	91.8
GENBALAX6	22	2.2	478	14.4	0	0.0	0	0.0
GLASER300	14	3.4	594	18.4	0	0.0	0	0.0
GLASER400	34	1.4	1,759	13.7	0	0.0	0	0.0

4.7 1990 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN  
BY DAY/NIGHT BY SDR MANUFACTURER/MODEL GROUP

SDR MANUFACTURER/ MODEL GROUP	DAY				NIGHT			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
GLASFL201	10	4.6	445	22.9	0	0.0	0	0.0
GLASFLH301	73	0.7	4,292	18.8	0	0.0	0	0.0
GROB 103CAT	60	0.8	8,086	19.9	0	0.0	0	0.0
GROB 109	57	0.9	7,021	22.5	7	67.3	58	72.9
GROB ASTIR	49	1.0	3,162	15.2	0	0.0	0	0.0
GRTILKS2T1	129	0.4	5,187	16.7	34	36.4	158	80.0
GRUMANS A16	18	2.7	1,235	26.7	0	0.0	0	0.0
GRUMAVAA1	462	0.1	34,515	24.8	284	16.5	4,478	29.7
GRUMAVAA5	895	0.1	82,457	9.7	834	4.7	12,206	18.7
GRUMAVG1159	33	1.5	8,694	9.3	33	1.5	3,904	13.0
GRUMAVG164	974	0.1	371,496	6.8	64	69.3	9,302	77.4
GRUMAVG21	38	1.3	4,267	49.5	20	32.0	115	52.4
GRUMAVTEM	17	2.9	991	39.3	2	114.3	25	118.5
GULSTM112	592	0.1	38,221	12.7	528	7.3	6,932	20.6
GULSTM500	268	0.2	42,046	14.3	226	7.4	9,048	28.9
GULSTM520	31	1.6	454	95.3	28	27.5	188	137.3
GULSTM560	101	0.5	7,034	37.4	99	6.4	4,274	49.1
GULSTM680	150	0.3	13,117	24.3	108	13.9	6,851	39.5
GULSTM680TP	21	2.3	4,771	0.9	21	2.3	630	14.6
GULSTM690TC	22	2.2	4,039	13.3	22	2.2	1,195	42.7
GULSTM690TP	362	0.1	70,797	11.2	359	2.2	31,003	17.9

4.7 1990 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN  
BY DAY/NIGHT BY SDR MANUFACTURER/MODEL GROUP

SDR MANUFACTURER/ MODEL GROUP	DAY				NIGHT			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
GULSTMAA1	506	0.1	29,662	12.0	290	15.2	2,768	50.9
GULSTMAA5	607	0.1	43,850	14.2	461	11.1	7,425	25.8
GULSTMG1159	249	0.2	64,686	16.6	248	2.2	30,973	18.4
GULSTMG1159	71	0.7	18,199	23.1	71	0.7	3,585	21.7
GULSTMG44	62	0.8	8,946	28.2	34	16.4	564	30.9
GULSTMG73	16	2.9	2,648	31.0	15	18.9	315	51.8
GULSTMG47	44	1.1	6,021	11.7	44	1.1	1,139	32.2
H23/HTE	9	5.3	2,326	15.3	0	0.0	0	0.0
H34/55	1	28.9	66	0.7	0	0.0	0	0.0
HELIO H295	69	0.7	7,158	15.0	34	24.6	450	40.0
HELIO H391	14	3.5	427	57.2	3	115.5	16	131.2
HILLERFH1100	21	2.3	546	40.0	2	150.8	13	160.4
HILLERUH12	418	0.1	74,545	21.8	223	26.1	11,636	60.6
HSPAVNHA200	19	2.5	545	22.7	0	0.0	0	0.0
HUGHES269	450	0.1	133,419	30.7	341	20.1	68,310	46.9
HUGHES369	446	0.1	97,371	24.7	352	16.5	24,616	100.0
HWKSLYDH104	8	6.1	31	1.6	0	0.0	0	0.0
HWKSLYDH125	163	0.3	35,781	17.9	163	0.3	10,363	18.0
HYNES B2	55	0.9	2,763	17.5	18	52.4	236	80.5
INTRCP200	27	1.8	3,214	30.8	12	31.8	583	60.0
ISRAELI121	90	0.6	6,319	17.6	87	5.5	2,462	21.9

4.7 1990 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN  
BY DAY/NIGHT BY SDR MANUFACTURER/MODEL GROUP

SDR MANUFACTURER/ MODEL GROUP	DAY				NIGHT			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
ISRAELI123	21	2.3	2,149	19.0	21	2.3	1,109	14.2
ISRAELI124	201	0.2	38,912	15.7	201	0.2	21,531	12.9
JBMSTRDGA15	37	1.3	2,724	34.9	19	35.1	143	53.8
LAIFEN10	3	14.0	15	3.1	0	0.0	0	0.0
LEAR 23	50	1.0	7,083	2.1	50	1.0	1,417	10.4
LEAR 24	150	0.3	49,376	27.0	150	0.3	16,976	27.1
LEAR 25	160	0.3	34,420	19.7	143	11.2	11,379	32.5
LEAR 35	359	0.1	127,526	15.8	359	0.1	36,450	27.2
LEAR 55	104	0.5	40,109	22.8	104	0.5	11,593	21.4
LET L13	146	0.3	12,439	15.0	0	0.0	0	0.0
LKHEED1329	75	0.7	15,738	16.9	75	0.7	6,436	20.7
LKHEED18	43	1.2	1,019	28.5	36	36.9	246	36.1
LKHEEDP2V	4	12.0	11	4.3	0	0.0	0	0.0
LKHEEDP1	5	8.5	70	21.7	0	0.0	0	0.0
LKHEEDT33	16	3.1	492	29.0	1	139.6	1	135.4
LUSCOM8	914	0.1	35,316	15.7	207	30.5	1,895	48.1
MACDOUG369	67	0.7	29,667	9.3	49	15.4	20,385	21.1
MARTIN404	3	15.4	19	2.5	0	0.0	0	0.0
MAULE M4	218	0.2	10,924	20.6	110	33.2	1,145	104.8
MAULE M5	407	0.1	25,793	12.4	232	13.5	1,464	31.3
MAULE M6	59	0.8	5,699	10.9	30	15.6	299	35.4





4.7 1990 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN  
BY DAY/NIGHT BY SDR MANUFACTURER/MODEL GROUP

SDR MANUFACTURER/ MODEL GROUP	DAY				NIGHT			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
NORNST65	23	2.2	945	18.2	3	87.0	4	86.3
ORLHELH19	8	6.0	333	19.1	0	0.0	0	0.0
PARTENP68	36	1.4	7,863	26.5	31	15.4	3,623	31.1
PICARDAX6	27	1.8	812	36.0	6	80.7	8	80.4
PILATSB4	26	1.9	2,882	41.1	0	0.0	0	0.0
PIPER 600	356	0.1	47,370	12.3	319	8.1	22,122	36.5
PIPER J2	22	2.2	281	63.4	0	0.0	0	0.0
PIPER J3	2,333	0.0	171,634	17.5	101	44.4	756	96.7
PIPER J4	73	0.7	2,827	36.1	2	156.1	53	172.6
PIPER J5	151	0.3	13,692	31.2	10	49.8	93	58.7
PIPER PA12	807	0.1	74,854	17.1	212	22.5	2,032	38.9
PIPER PA14	63	0.8	10,761	35.9	29	31.1	3,130	88.7
PIPER PA15	85	0.6	2,710	11.4	2	90.0	5	89.0
PIPER PA16	171	0.3	11,733	18.7	61	28.3	897	68.1
PIPER PA17	50	1.0	1,888	23.9	2	143.1	5	150.5
PIPER PA18	2,780	0.0	311,282	14.8	681	20.9	6,893	41.3
PIPER PA20	279	0.2	15,664	14.4	74	28.5	598	38.1
PIPER PA22	3,049	0.0	163,937	7.1	2,011	7.4	17,046	18.5
PIPER PA23	2,934	0.0	300,513	11.4	2,204	7.6	76,474	19.3
PIPER PA24	2,902	0.0	217,807	7.6	2,211	6.2	41,992	18.1
PIPER PA25	758	0.1	176,017	13.0	36	95.4	267	95.5

4.7 1990 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN  
BY DAY/NIGHT BY SDR MANUFACTURER/MODEL GROUP

SDR MANUFACTURER/ MODEL GROUP	DAY				NIGHT			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
PIPER PA28	20,287	0.2	2,339,427	6.2	15,600	2.6	420,896	10.1
PIPER PA30	1,138	0.0	97,940	14.5	924	8.1	21,311	18.3
PIPER PA31	1,690	0.0	249,408	15.5	1,671	1.5	94,571	12.8
PIPER PA31T	467	0.1	81,376	13.4	461	2.5	30,448	15.0
PIPER PA32	3,734	0.0	432,184	6.1	2,856	5.5	110,435	15.3
PIPER PA34	1,697	0.0	236,329	12.5	1,396	7.8	118,162	35.3
PIPER PA36	277	0.2	62,392	9.9	71	44.5	1,097	89.1
PIPER PA38	1,057	0.0	234,541	18.4	733	11.1	39,082	23.9
PIPER PA42	83	0.6	20,974	9.1	83	0.6	6,920	16.1
PIPER PA44	284	0.2	115,428	14.0	272	4.4	36,954	24.3
PIPER PA46	281	0.2	53,610	10.6	269	5.0	9,946	25.8
PROPTJ200	52	1.0	2,740	32.1	4	166.6	17	179.3
RAVEN RX6	37	1.3	507	37.8	0	0.0	0	0.0
RAVEN S50	14	3.5	173	50.0	0	0.0	0	0.0
RAVEN S55	388	0.1	13,254	19.7	76	53.1	658	171.2
RAVEN S57	89	0.6	4,289	10.0	0	0.0	0	0.0
RAVEN S60	202	0.2	7,311	15.9	0	0.0	0	0.0
RAVEN S66	31	1.6	923	78.5	0	0.0	0	0.0
RKWE1500	32	1.5	8,620	26.3	29	10.1	1,605	15.3
RKWE1700	22	2.2	3,146	29.0	22	2.2	1,100	22.3
RKWE1NA265	262	0.2	63,392	13.3	259	2.7	30,634	24.5

4.7 1990 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN  
BY DAY/NIGHT BY SDR MANUFACTURER/MODEL GROUP

SDR MANUFACTURER/ MODEL GROUP	DAY				NIGHT			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
ROBSINR22	494	0.1	236,094	16.3	405	11.9	19,028	21.4
ROLSCHLS	107	0.5	7,806	12.0	0	0.0	0	0.0
RYAN ST3	125	0.4	4,528	25.0	0	0.0	0	0.0
RYAN STA	11	4.5	169	20.9	0	0.0	0	0.0
SAAB SF340	25	2.0	13,500	0.0	25	2.0	3,375	0.0
SCHEMPDISCUS	45	1.1	3,592	13.9	6	65.4	48	63.1
SCHLERASK21	31	1.6	7,291	15.5	0	0.0	0	0.0
SCHLERASW15	27	1.8	1,145	10.5	0	0.0	0	0.0
SCHLERASW19	45	1.1	3,633	13.9	0	0.0	0	0.0
SCHLERASW20	79	0.6	4,767	31.0	0	0.0	0	0.0
SCHLERK8	17	2.9	726	31.1	0	0.0	0	0.0
SCHLERKA6	31	1.6	913	22.2	0	0.0	0	0.0
SCHWZH269	49	1.0	10,143	18.1	44	10.3	10,531	34.6
SCWZERG164	156	0.3	34,941	14.8	13	106.1	1,958	114.7
SCWZERSG1	542	0.1	24,560	15.2	0	0.0	0	0.0
SCWZERSG2	336	0.1	42,461	22.7	0	0.0	0	0.0
SEMCO MODEL T	14	3.4	51	17.5	0	0.0	0	0.0
SKRSKYS55	3	13.0	33	1.5	0	0.0	0	0.0
SKRSKYS58	40	1.2	3,253	31.7	21	50.4	503	59.8
SKRSKYS58T	20	2.5	6,156	10.8	16	19.2	390	21.8
SKRSKYS61	18	2.6	16,927	27.2	9	36.5	2,255	49.7



4.7 1990 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN  
BY DAY/NIGHT BY SDR MANUFACTURER/MODEL GROUP

SDR MANUFACTURER/ MODEL GROUP	DAY				NIGHT			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
SUPAC LA	22	2.2	1,013	20.5	0	0.0	0	0.0
SWRNGNSA226	134	0.4	25,310	11.9	95	14.9	13,014	26.1
SWRNGNSA227	60	0.8	34,075	23.9	57	7.7	11,215	26.0
SWRNGNSA26	78	0.6	8,352	35.3	78	0.6	4,433	36.2
TCRAFKD	157	0.3	10,959	23.3	0	0.0	0	0.0
TCRAFTA	7	6.7	98	16.4	0	0.0	0	0.0
TCRAFTBC	898	0.1	46,272	11.7.	0	0.0	0	0.0
TCRAFTBF	15	3.2	568	57.3	0	0.0	0	0.0
TCRAFTBL	44	1.1	1,979	26.6	1	158.0	36	177.2
TEMCO 11A	18	2.7	1,015	25.3	7	39.2	26	40.8
TH55	33	1.5	2,551	29.7	16	29.0	670	50.4
THUNDRAJ7	81	0.6	3,130	17.6	0	0.0	0	0.0
TMP SONNAVION	367	0.1	14,745	19.4	206	22.4	1,779	48.1
TOMCAT	32	1.6	3,099	24.3	14	44.3	114	80.1
TRYTEK65	135	0.4	7,515	27.1	0	0.0	0	0.0
TRYTEKK	2	20.0	84	0.6	0	0.0	0	0.0
UNIVACGC1	450	0.1	20,441	17.4	96	45.1	733	51.7
UNIVAR108	1,135	0.0	49,015	11.8	379	16.6	2,370	30.6
UNIVAR415	1,268	0.0	75,506	12.8	354	28.7	3,394	47.3
VALENT17	22	2.2	1,132	26.0	4	60.2	12	57.4
VARGA 2150	121	0.4	8,353	14.9	80	24.9	472	40.6

4.7 1990 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN  
BY DAY/NIGHT BY SDR MANUFACTURER/MODEL GROUP

SDR MANUFACTURER/ MODEL GROUP	DAY				NIGHT			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
WACO ASO	8	5.9	595	54.1	0	0.0	0	0.0
WACO GXE	8	6.1	148	39.6	0	0.0	0	0.0
WACO R	8	6.1	268	24.5	1	107.2	4	108.8
WACO UPF7	71	0.7	5,702	45.5	6	50.4	60	65.8
WACO YK	15	3.2	224	27.9	0	0.0	0	0.0
WSK M18	35	1.4	5,795	94.4	7	133.2	39	135.1
WTHRLY201	54	0.9	17,252	20.1	1	176.4	190	202.3
TOTAL	211,887	0.1	28,885,278	1.6	132,159	0.9	5,580,775	3.4

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

FOR ADDITIONAL INFORMATION, SEE APPENDIX B FOR SDR AIRCRAFT GROUP NAMES AND FAA MANUFACTURER/MODEL CODES.

4.8 1990 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN  
UNDER IMC AND VMC CONDITIONS BY SDR MANUFACTURER/MODEL GROUP

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SDR MANUFACTURER/ MODEL GROUP	IMC				VMC			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
OTHER 1	420	35.8	11,122	65.1	9,583	0.0	642,889	11.3
OTHER 2	387	22.4	11,737	36.8	1,221	0.0	136,323	17.2
OTHER 3	32	76.5	4,265	86.4	123	0.4	13,145	84.8
OTHER 4	56	36.8	1,961	63.4	118	0.4	13,121	43.3
OTHER 5	13	123.8	739	155.2	69	0.7	53,819	32.7
OTHER 6	390	3.3	92,099	40.7	359	8.5	132,062	31.0
OTHER 7	134	29.1	157,454	53.8	112	38.4	67,109	78.8
OTHER 8	31	44.9	953	54.2	109	0.5	26,394	27.6
OTHER 9	334	2.0	31,736	23.1	317	6.9	73,916	19.3
OTHER 10	137	20.4	19,908	42.3	173	11.3	18,713	47.9
OTHER 11	0	0.0	0	0.0	893	0.1	31,922	42.9
OTHER 12	27	92.5	4,710	98.8	223	0.2	144,827	40.0
OTHER 13	0	0.0	0	0.0	2,226	0.0	119,842	16.5
ADAMS A50S	0	0.0	0	0.0	88	0.6	1,828	16.4
AERORSJ2	0	0.0	0	0.0	14	3.4	462	41.0
AEROSPAS355	0	0.0	0	0.0	103	0.5	8,770	51.8
AEROSPAS316	0	0.0	0	0.0	78	0.6	31,480	15.5
AEROSPAS365	11	57.0	429	58.3	28	1.8	8,668	14.1
AGUSTA205	0	0.0	0	0.0	22	2.3	7,704	100.6
AGUSTAA109	25	42.7	635	59.4	54	0.9	7,610	22.5
AIRPTSA	0	0.0	0	0.0	126	0.4	15,308	18.8

4.8 1990 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN  
UNDER IMC AND VMC CONDITIONS BY SDR MANUFACTURER/MODEL GROUP

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SDR MANUFACTURER/ MODEL GROUP	IMC				VMC			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
AIRSPC18	0	0.0	0	0.0	14	3.6	736	23.7
AIRTRCAT300	0	0.0	0	0.0	403	0.1	168,502	10.8
AIRTRCAT400	0	0.0	0	0.0	111	0.4	61,173	19.8
AIRTRCAT500	0	0.0	0	0.0	73	0.7	30,629	15.5
AMD FALC10	110	0.5	22,101	20.8	94	10.4	19,355	23.0
AMD FALC20	168	2.6	25,742	25.6	169	0.3	42,037	17.1
AMD FALC50	113	0.4	21,099	21.6	93	13.4	29,112	20.5
ARCTICS1A	0	0.0	0	0.0	31	1.6	1,418	30.5
ARCTICS1B1	0	0.0	0	0.0	11	4.2	335	20.5
ARONCA15	5	93.8	2	94.4	109	0.5	5,870	25.4
ARONCA58	0	0.0	0	0.0	90	0.6	4,357	17.8
ARONCA65	0	0.0	0	0.0	90	0.6	4,454	21.7
ARONCAC3	0	0.0	0	0.0	14	3.5	62	32.7
AVIANWFALCON	0	0.0	0	0.0	6	8.0	158	17.4
AVIANWSKYHWK	0	0.0	0	0.0	36	1.4	896	23.3
AYRES S2	6	60.6	143	73.1	676	0.1	270,247	12.9
BAG B206	20	21.2	365	21.6	21	2.3	1,064	34.0
BAG DH125	71	0.7	12,126	20.5	59	11.0	16,271	20.6
BALWKSFIREFY	0	0.0	0	0.0	1,381	0.0	42,580	15.2
BBAVIA11	0	0.0	0	0.0	397	0.1	17,361	14.5
BBAVIA7	29	110.0	538	111.3	2,041	0.0	118,684	11.7



4.8 1990 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN  
UNDER IMC AND VMC CONDITIONS BY SDR MANUFACTURER/MODEL GROUP

SDR MANUFACTURER/ MODEL GROUP	IMC				VMC			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
BBAVIA8	0	0.0	0	0.0	199	0.3	35,010	24.5
BEECH 100	222	0.2	22,315	29.3	206	7.9	42,824	17.8
BEECH 17	84	32.1	200	71.1	131	0.4	8,390	22.3
BEECH 18	226	32.4	15,309	58.6	593	0.1	86,115	35.1
BEECH 1900	128	0.4	94,158	31.1	125	11.0	196,808	14.8
BEECH 200	804	0.1	83,110	11.7	781	2.9	217,455	7.5
BEECH 23	872	15.0	19,827	32.0	2,509	0.0	254,598	10.8
BEECH 300	134	0.4	15,824	19.7	134	0.4	34,529	17.6
BEECH 33	1,422	6.7	38,017	16.4	2,022	0.0	252,801	11.7
BEECH 35	3,466	7.2	81,944	23.9	5,961	0.0	642,856	12.2
BEECH 36	2,186	2.6	70,008	12.0	2,216	2.2	300,773	7.8
BEECH 45	128	29.4	1,010	37.2	290	0.2	26,989	20.6
BEECH 50	53	75.8	1,265	83.5	168	0.3	8,307	60.8
BEECH 55	1,872	4.1	73,329	12.2	2,069	0.0	246,870	10.7
BEECH 56	37	10.5	951	20.6	48	3.7	2,826	15.0
BEECH 58	1,227	5.0	78,126	25.2	1,330	2.0	226,832	18.9
BEECH 60	353	4.9	15,741	33.7	363	0.1	31,933	18.0
BEECH 65	41	50.9	1,452	59.0	107	0.5	5,955	33.0
BEECH 76	210	7.6	13,403	30.3	233	0.2	50,041	17.8
BEECH 77	28	62.2	169	85.2	173	0.3	33,954	33.7
BEECH 80	62	22.0	1,737	57.2	116	0.4	12,411	35.9

4.8 1990 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN  
UNDER IMC AND VMC CONDITIONS BY SDR MANUFACTURER/MODEL GROUP

SDR MANUFACTURER/ MODEL GROUP	IMC				VMC			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
BEECH 90	961	3.7	90,934	13.2	968	3.5	214,689	7.9
BEECH 95	252	21.4	8,410	40.1	412	0.1	35,357	18.5
BEECH 99	52	1.0	13,979	28.1	52	1.0	26,852	24.5
BELL 204	0	0.0	0	0.0	20	2.4	6,786	13.7
BELL 206	154	57.6	2,425	96.4	1,782	0.0	714,812	9.5
BELL 212	60	51.4	225	51.1	106	0.5	45,602	46.0
BELL 222	26	20.7	1,808	26.7	40	1.2	12,325	19.9
BELL 412	12	98.7	565	107.7	49	1.0	17,123	56.3
BELL 47	0	0.0	0	0.0	544	0.1	94,498	22.3
BLANCA11	0	0.0	0	0.0	55	0.9	2,079	20.6
BLANCA1413	0	0.0	0	0.0	77	0.6	4,300	21.2
BLANCA1419	36	51.0	396	61.3	191	0.3	7,147	25.1
BLANCA17	397	20.6	7,770	39.8	829	2.3	71,036	15.8
BLANCA7	12	110.6	261	122.2	1,769	0.0	121,248	7.9
BLANCA8	0	0.0	0	0.0	422	0.1	34,421	18.8
BNORM BN2	4	119.5	550	121.8	31	1.6	27,323	14.8
BOEING727	25	2.0	6,387	15.8	25	2.0	8,482	37.7
BOEING75	0	0.0	0	0.0	1,007	0.0	58,443	15.5
BOLKMS105	0	0.0	0	0.0	147	0.3	96,972	21.5
BOLKMS117	3	149.8	39	158.5	68	0.7	20,165	18.8
BRAERODH125	129	0.4	21,767	20.2	101	14.5	40,222	21.1

4.8 1990 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN  
UNDER IMC AND VMC CONDITIONS BY SDR MANUFACTURER/MODEL GROUP

SDR MANUFACTURER/ MODEL GROUP	IMC				VMC			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
BRASOVIS28	0	0.0	0	0.0	36	1.4	2,559	19.1
BRWSTFLEET2	0	0.0	0	0.0	16	3.0	279	63.4
BRWSTFLEET7	0	0.0	0	0.0	11	4.3	414	27.4
BOKER 131	0	0.0	0	0.0	16	3.1	1,027	25.4
CAMRONMODELO	0	0.0	0	0.0	41	1.2	2,309	16.0
CAMRONMODELO	0	0.0	0	0.0	140	0.4	3,765	25.4
CASA C212	38	9.4	5,961	35.9	40	1.2	15,287	29.3
CESSNA120	0	0.0	0	0.0	643	0.1	53,269	17.0
CESSNA140	54	73.0	838	82.7	1,785	0.0	103,417	12.4
CESSNA150	2,088	14.9	106,318	31.8	16,406	0.0	4,261,584	7.1
CESSNA170	205	38.6	2,024	69.9	1,980	0.0	131,735	10.9
CESSNA172	7,551	6.7	334,319	14.8	22,342	0.0	3,848,970	5.9
CESSNA175	144	39.6	1,053	56.9	1,039	0.0	64,245	15.4
CESSNA177	1,153	11.9	26,783	19.7	2,445	0.0	219,227	8.6
CESSNA180	622	22.2	9,293	61.6	2,458	0.0	224,262	13.3
CESSNA182	5,586	6.4	111,079	13.3	12,360	0.0	1,367,591	5.9
CESSNA185	480	19.3	6,042	34.6	1,464	0.0	205,436	10.2
CESSNA188	0	0.0	0	0.0	1,319	0.0	305,628	11.9
CESSNA190	14	46.2	74	117.0	46	1.1	1,281	23.3
CESSNA195	120	34.1	1,824	43.9	286	0.2	23,296	20.0
CESSNA205	72	39.8	2,368	54.3	195	0.3	13,200	23.3

4.8 1990 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN  
UNDER IMC AND VMC CONDITIONS BY SDR MANUFACTURER/MODEL GROUP

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SDR MANUFACTURER/ MODEL GROUP	IMC				VMC			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
CESSNA206	1,386	12.7	22,888	24.6	2,439	1.4	523,728	15.2
CESSNA207	11	189.3	527	194.7	241	0.2	191,666	22.4
CESSNA208	113	2.6	19,441	11.4	116	0.4	49,465	10.9
CESSNA210	3,468	6.7	100,859	12.0	5,116	0.0	555,045	8.2
CESSNA303	122	5.6	8,680	27.3	136	1.8	18,677	8.5
CESSNA305	5	122.9	16	127.4	229	0.2	41,376	24.0
CESSNA310	2,168	5.6	103,688	30.1	2,494	2.2	321,950	13.0
CESSNA320	120	18.5	4,061	47.8	163	0.3	16,213	33.7
CESSNA335	38	6.3	2,930	25.4	32	13.6	4,652	22.0
CESSNA336	9	43.8	242	127.9	21	2.3	1,376	28.6
CESSNA337	518	15.1	13,828	28.5	857	0.1	91,199	13.0
CESSNA340	818	1.3	29,726	22.6	822	0.1	96,018	11.9
CESSNA401	188	7.1	13,557	29.3	205	0.2	28,526	14.1
CESSNA402	345	13.8	63,136	32.8	453	1.9	240,835	17.4
CESSNA404	130	0.4	14,765	108.0	117	18.1	18,548	31.2
CESSNA411	16	42.3	398	64.0	36	10.9	1,633	31.3
CESSNA414	753	0.1	39,893	21.4	749	1.4	130,843	15.2
CESSNA421	1,022	3.0	42,433	24.5	1,009	3.7	132,371	14.8
CESSNA425	173	0.3	13,418	19.9	170	3.7	31,171	13.3
CESSNA441	206	3.0	16,705	17.2	199	6.0	63,768	16.7
CESSNA500	665	3.9	56,840	19.6	621	6.7	161,715	17.2

4.8 1990 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN  
UNDER IMC AND VMC CONDITIONS BY SDR MANUFACTURER/MODEL GROUP

SDR MANUFACTURER/ MODEL GROUP	IMC				VMC			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
CESSNA501	236	0.2	20,254	30.2	224	6.8	38,387	16.6
CESSNA650	135	0.4	27,858	23.8	104	13.7	34,761	17.0
CESSNA750	2	99.6	49	99.5	16	3.1	490	29.9
CESSNAUC94	0	0.0	0	0.0	7	6.3	96	22.8
CHILD S1	0	0.0	0	0.0	47	1.1	2,234	17.4
CHILD S2	0	0.0	0	0.0	140	0.4	8,096	20.2
CHRIS HUSKY	0	0.0	0	0.0	78	0.6	6,559	17.6
CNDALRCL600	139	0.4	20,389	20.7	136	5.1	48,536	17.1
CNTRAR101	0	0.0	0	0.0	31	1.6	2,186	29.0
COMWTH185	0	0.0	0	0.0	39	1.3	3,360	30.0
CONAERLA4	41	63.1	249	72.9	297	0.2	15,805	26.9
CURTISJR	0	0.0	0	0.0	4	12.4	19	32.4
CURTISTRVAIR	0	0.0	0	0.0	38	1.3	2,725	24.7
CVAC 240	3	16.2	336	0.1	3	16.2	181	0.3
CVAC 440	4	12.0	132	0.4	4	12.0	564	0.1
CVAC BT13	3	82.9	21	82.8	52	0.9	2,215	15.5
CVAC STC580	33	1.5	9,304	38.7	16	60.7	6,510	69.7
DART G	0	0.0	0	0.0	7	6.5	256	14.0
DHAV DEC1	0	0.0	0	0.0	62	0.8	2,776	17.4
DHAV DEC2	31	71.8	903	71.8	145	0.3	53,588	12.6
DHAV DEC4	31	1.6	1,449	0.0	31	1.6	1,186	0.0

4.8 1990 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN  
UNDER IMC AND VMC CONDITIONS BY SDR MANUFACTURER/MODEL GROUP

SDR MANUFACTURER/ MODEL GROUP	IMC				VMC			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
DHAV DHC6	67	11.4	4,241	52.5	72	0.7	48,067	43.6
DHAVYDHD82	2	137.6	17	147.5	53	0.9	1,724	22.9
DORNERDO228	29	1.7	33,350	0.0	29	1.7	33,350	0.0
DOUG A26	0	0.0	0	0.0	18	2.7	881	25.6
DOUG DC3	107	49.8	15,392	64.6	206	13.3	41,761	31.8
DOUG DC4	14	33.0	852	72.1	21	17.2	1,519	39.9
EAGLE DW	0	0.0	0	0.0	51	1.0	13,132	15.0
EAGLEBAX7	0	0.0	0	0.0	13	3.7	420	9.9
EAGLEBC7	0	0.0	0	0.0	24	2.0	577	28.7
EIRVON20	0	0.0	0	0.0	108	0.5	6,852	21.0
EMB 110	22	2.2	19,421	24.3	22	2.2	20,529	9.6
EMB 120	42	1.2	102,474	34.7	0	0.0	0	0.0
ENSTRMF28	6	89.8	498	106.9	316	0.2	52,579	17.1
FLEET 16B	0	0.0	0	0.0	19	2.5	466	31.7
FRCHLD24	0	0.0	0	0.0	130	0.4	2,810	26.4
FRCHLDF27	18	2.8	2,911	33.9	16	16.9	2,755	17.8
FRCHLDM62	0	0.0	0	0.0	139	0.4	7,006	37.6
GALAXYGX7	0	0.0	0	0.0	50	1.0	1,653	16.2
GENERALAX6	0	0.0	0	0.0	22	2.2	478	14.4
GLASER300	0	0.0	0	0.0	14	3.4	594	18.4
GLASER400	0	0.0	0	0.0	34	1.4	1,759	13.7

4.8 1990 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN  
UNDER IMC AND VMC CONDITIONS BY SDR MANUFACTURER/MODEL GROUP

SDR MANUFACTURER/ MODEL GROUP	IMC				VMC			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
GLASFL201	0	0.0	0	0.0	10	4.6	445	22.9
GLASFLH301	0	0.0	0	0.0	73	0.7	4,292	18.8
GROB 103CAT	0	0.0	0	0.0	60	0.8	8,086	19.9
GROB 109	0	0.0	0	0.0	57	0.9	7,079	22.2
GROB ASTIR	0	0.0	0	0.0	49	1.0	3,162	15.2
GRTLKS2T1	0	0.0	0	0.0	129	0.4	5,346	17.1
GRUMANS16	11	38.2	128	53.3	18	2.7	1,107	25.5
GRUMAVAA1	74	47.6	1,392	69.8	462	0.1	37,616	24.2
GRUMAVAA5	406	19.0	6,823	24.9	895	0.1	87,768	8.7
GRUMAVG1159	33	1.5	4,319	31.1	28	16.0	6,279	16.8
GRUMAVG164	0	0.0	0	0.0	974	0.1	380,798	6.6
GRUMAVG21	12	49.4	36	53.1	38	1.3	4,347	48.5
GRUMAVTEM	0	0.0	0	0.0	17	2.9	1,016	38.6
GULSTM112	297	20.8	5,255	29.1	592	0.1	39,898	12.8
GULSTM500	207	9.2	11,120	29.2	268	0.2	40,011	13.7
GULSTM520	0	0.0	0	0.0	31	1.6	642	80.7
GULSTM560	81	23.3	1,135	77.2	101	0.5	10,172	36.2
GULSTM680	115	12.3	6,187	34.8	150	0.3	13,780	24.9
GULSTM680TP	21	2.3	1,148	7.5	21	2.3	4,253	1.1
GULSTM690TC	22	2.2	1,389	31.6	22	2.2	3,844	12.6
GULSTM690TP	361	1.3	23,419	20.8	347	4.4	78,381	13.2

4.8 1990 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN  
UNDER IMC AND VMC CONDITIONS BY SDR MANUFACTURER/MODEL GROUP

SDR MANUFACTURER/ MODEL GROUP	IMC				VMC			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
GULSTMAA1	50	52.8	241	57.3	506	0.1	32,189	12.7
GULSTMAA5	144	35.5	3,810	43.4	607	0.1	47,465	13.9
GULSTMG1159	249	0.2	29,144	29.3	233	7.4	66,540	17.6
GULSTMG159	71	0.7	5,360	53.7	71	0.7	16,424	21.6
GULSTMG44	27	20.6	580	27.4	62	0.8	8,893	29.6
GULSTMG73	13	27.0	317	68.1	16	2.9	2,645	24.4
GULSTMG47	40	9.5	1,324	17.7	44	1.1	5,836	11.7
H23/HTE	0	0.0	0	0.0	9	5.3	2,326	15.3
H34/55	0	0.0	0	0.0	1	28.9	66	0.7
HELIO H295	9	62.0	54	89.9	69	0.7	7,613	14.9
HELIO H391	0	0.0	0	0.0	14	3.5	445	61.7
HILLERFH1100	11	56.3	21	55.3	21	2.3	537	43.4
HILLERUH12	0	0.0	0	0.0	418	0.1	86,182	19.8
HSPAVNHA200	0	0.0	0	0.0	19	2.5	545	22.7
HUGHES269	0	0.0	0	0.0	450	0.1	201,728	21.9
HUGHES369	0	0.0	0	0.0	446	0.1	121,987	31.0
HWKSLYDH104	0	0.0	0	0.0	8	6.1	31	1.6
HWKSLYDH125	163	0.3	18,792	29.5	127	13.6	27,352	23.0
HYNES B2	0	0.0	0	0.0	55	0.9	2,999	18.0
INTRCP200	20	17.0	1,415	75.3	27	1.8	2,343	21.5
ISRAEL1121	82	8.7	2,958	50.5	82	8.7	5,823	21.7



4.8 1990 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN  
UNDER IMC AND VMC CONDITIONS BY SDR MANUFACTURER/MODEL GROUP

SDR MANUFACTURER/ MODEL GROUP	IMC				VMC			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
ISRAEL1123	21	2.3	1,749	19.4	16	19.9	1,509	36.2
ISRAEL1124	201	0.2	18,281	22.6	185	7.3	42,161	15.2
JBMSTRDGA15	5	90.1	96	89.2	37	1.3	2,772	35.7
LAKFN10	0	0.0	0	0.0	3	14.0	15	3.1
LEAR 23	50	1.0	1,133	12.9	50	1.0	7,367	2.0
LEAR 24	140	7.8	20,354	23.2	143	6.4	45,998	30.6
LEAR 25	160	0.3	19,497	26.7	131	15.0	26,302	27.5
LEAR 35	359	0.1	40,271	30.7	358	1.9	123,704	17.5
LEAR 55	101	5.3	26,910	24.0	86	12.6	24,793	38.8
LET L13	0	0.0	0	0.0	146	0.3	12,439	15.0
LKHEED1329	75	0.7	4,707	25.3	75	0.7	17,468	11.5
LKHEED18	36	36.9	246	36.1	43	1.2	1,019	28.5
LKHEEDP2V	0	0.0	0	0.0	4	12.0	11	4.3
LKHEEDPV1	0	0.0	0	0.0	5	8.5	70	21.7
LKHEEDT33	1	139.6	9	152.0	16	3.1	484	29.5
LUSCOM8	64	60.1	119	84.1	914	0.1	37,092	15.9
MACDOUG369	0	0.0	0	0.0	67	0.7	50,052	12.6
MARTIN404	0	0.0	0	0.0	3	15.4	19	2.5
MAULE M4	15	123.7	130	131.1	218	0.2	11,939	21.9
MAULE M5	71	33.9	830	38.2	407	0.1	26,420	12.2
MAULE M6	14	28.6	160	37.3	59	0.8	5,838	10.5

4.8 1990 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN  
UNDER IMC AND VMC CONDITIONS BY SDR MANUFACTURER/MODEL GROUP

SDR MANUFACTURER/ MODEL GROUP	IMC				VMC			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
MCLISHFUNKB	0	0.0	0	0.0	62	0.8	2,285	20.5
MEYERSOTW	0	0.0	0	0.0	15	3.2	310	24.7
MILITARY204	0	0.0	0	0.0	150	0.3	41,258	16.6
MILITARY47	0	0.0	0	0.0	165	0.3	24,160	19.4
MNCOUP90	0	0.0	0	0.0	15	3.3	542	30.3
MNMITM18	4	151.5	191	158.4	72	0.7	3,259	51.4
MODFD47	0	0.0	0	0.0	37	1.4	5,719	20.3
MOONEYM20	3,748	6.7	119,928	13.0	5,938	0.0	742,039	8.6
MERCHTIS205	0	0.0	0	0.0	27	1.8	864	17.8
MTSBSIMU2	243	15.4	15,901	59.7	279	3.0	32,241	34.1
MTSBSIMU300	74	3.0	6,278	22.3	70	6.2	15,554	12.5
MULTECD16	2	98.6	8	98.3	12	4.0	512	16.5
NAMER B25	5	82.5	23	83.4	30	1.6	1,377	22.3
NAMER F51	15	65.7	83	74.6	88	0.6	4,933	36.5
NAMER NA260	14	85.9	99	88.4	125	0.4	5,762	26.6
NAMER T6	55	55.3	347	63.5	411	0.1	22,177	18.9
NATBAL752	0	0.0	0	0.0	34	1.4	1,067	44.0
NAVAL N3N	0	0.0	0	0.0	41	1.2	1,639	20.7
NAVIONNAVION	98	33.8	1,437	46.7	421	0.1	23,016	13.8
NORD 3202	0	0.0	0	0.0	16	3.0	1,310	19.3
NORD SV4	0	0.0	0	0.0	23	2.1	788	31.4



4.8 1990 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN  
UNDER IMC AND VMC CONDITIONS BY SDR MANUFACTURER/MODEL GROUP

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SDR MANUFACTURER/ MODEL GROUP	IMC				VMC			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
PIPER PA28	8,436	5.4	320,784	18.3	20,331	0.0	2,439,772	6.2
PIPER PA30	957	7.3	24,267	19.7	1,138	0.0	94,961	14.9
PIPER PA31	1,680	1.1	112,313	17.4	1,689	0.5	231,666	16.7
PIPER PA31T	467	0.1	29,414	13.6	453	3.9	82,488	14.4
PIPER PA32	2,753	5.9	84,224	13.1	3,734	0.0	458,385	7.0
PIPER PA34	1,534	5.5	72,736	19.4	1,697	0.0	281,754	15.2
PIPER PA36	0	0.0	0	0.0	277	0.2	63,489	9.7
PIPER PA38	121	46.4	2,625	86.6	1,057	0.0	270,998	17.5
PIPER PA42	83	0.6	6,491	18.9	82	3.4	21,403	9.0
PIPER PA44	264	5.6	41,575	22.9	282	2.0	111,095	15.7
PIPER PA46	269	5.0	18,086	16.7	281	0.2	45,542	11.7
PROPTJ200	27	48.7	100	48.0	52	1.0	2,656	32.9
RAVEN RX6	0	0.0	0	0.0	37	1.3	507	37.8
RAVEN S50	0	0.0	0	0.0	14	3.5	173	50.0
RAVEN S55	4	245.9	663	265.4	388	0.1	13,249	18.2
RAVEN S57	0	0.0	0	0.0	89	0.6	4,289	10.0
RAVEN S60	0	0.0	0	0.0	202	0.2	7,311	15.9
RAVEN S66	0	0.0	0	0.0	31	1.6	923	78.5
RKWE1500	29	10.1	2,086	30.5	32	1.5	8,139	26.5
RKWE1700	22	2.2	1,115	23.0	22	2.2	3,131	28.4
RKWE1NA265	259	2.7	40,120	20.5	188	15.3	53,905	23.2

4.8 1990 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN  
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SDR MANUFACTURER/ MODEL GROUP	IMC				VMC			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
ROBSINR22	0	0.0	0	0.0	494	0.1	255,123	15.9
ROLSCHLS	0	0.0	0	0.0	107	0.5	7,806	12.0
RYAN ST3	0	0.0	0	0.0	125	0.4	4,528	25.0
RYAN STA	0	0.0	0	0.0	11	4.5	169	20.9
SAAB SF340	25	2.0	5,063	0.0	25	2.0	11,813	0.0
SCHEMPDISCUS	0	0.0	0	0.0	45	1.1	3,640	14.0
SCHLERASK21	0	0.0	0	0.0	31	1.6	7,291	15.5
SCHLERASW15	0	0.0	0	0.0	27	1.8	1,145	10.5
SCHLERASW19	2	106.2	11	107.3	45	1.1	3,621	13.9
SCHLERASW20	0	0.0	0	0.0	79	0.6	4,767	31.0
SCHLERK8	0	0.0	0	0.0	17	2.9	726	31.1
SCHLERKA6	0	0.0	0	0.0	31	1.6	913	22.2
SCHWZH269	0	0.0	0	0.0	49	1.0	20,675	25.1
SCWZERG164	0	0.0	0	0.0	156	0.3	37,492	15.1
SCWZERSG1	1	212.0	3	228.5	542	0.1	24,557	15.2
SCWZERSG2	0	0.0	0	0.0	336	0.1	42,461	22.7
SEMO MODELT	0	0.0	0	0.0	14	3.4	51	17.5
SKRSKYS55	0	0.0	0	0.0	3	13.0	33	1.5
SKRSKYS58	0	0.0	0	0.0	40	1.2	3,823	24.1
SKRSKYS58T	0	0.0	0	0.0	20	2.5	6,546	9.4
SKRSKYS61	4	63.3	712	59.4	18	2.6	18,217	23.9

4.8 1990 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN  
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	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
SKRSKYS76	149	12.6	10,344	23.6	163	0.3	79,980	18.0
SLINDS100	10	88.3	93	106.1	189	0.3	10,215	16.7
SMITH 600	253	11.5	12,607	31.9	289	0.2	57,617	32.5
SNAIS350	0	0.0	0	0.0	38	1.3	20,018	18.3
SNIAS 350	4	224.0	12	235.7	163	0.3	113,093	17.3
SNIAS SA341	0	0.0	0	0.0	17	2.8	5,127	56.2
SOCATAMS894	3	69.3	7	67.2	33	1.5	1,770	12.8
SOCATARALLYE	1	87.4	3	85.1	17	2.9	1,092	21.5
SOCATATB10	30	18.8	1,207	55.0	41	1.2	6,833	21.4
SOCATATB20	64	26.3	3,066	55.4	117	0.4	9,992	20.0
SPHRTHCIRRUS	0	0.0	0	0.0	79	0.6	3,848	17.2
SPHRTNIMBUS	0	0.0	0	0.0	41	1.2	1,757	21.2
SPHRTHVENTUS	0	0.0	0	0.0	37	1.3	2,508	18.7
STBROSSC7	17	17.9	1,106	27.6	20	2.4	9,377	25.8
STBROSSD3	0	0.0	0	0.0	66	0.8	330	0.2
STNSON10	0	0.0	0	0.0	31	1.6	1,441	42.5
STNSONJR	0	0.0	0	0.0	4	10.4	14	35.1
STNSONL5	0	0.0	0	0.0	29	1.7	1,783	24.3
STNSONSR9	0	0.0	0	0.0	1	27.0	9	5.0
STNSONV77	0	0.0	0	0.0	30	1.6	839	31.3
STOLAMRC3	1	128.7	2	131.8	82	0.6	3,118	14.3

4.8 1990 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN  
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	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
SUPAC LA	0	0.0	0	0.0	22	2.2	1,013	20.5
SWRNGNSA226	123	7.4	13,629	24.8	115	8.5	25,509	12.6
SWRNGNSA227	60	0.8	8,313	19.4	56	9.4	36,977	26.5
SWRNGNSA26	78	0.6	3,424	36.3	78	0.6	9,361	35.0
TCRAFKD	0	0.0	0	0.0	157	0.3	10,959	23.3
TCRAFTA	0	0.0	0	0.0	7	6.7	98	16.4
TCRAFTBC	0	0.0	0	0.0	898	0.1	46,272	11.7
TCRAFTBF	0	0.0	0	0.0	15	3.2	568	57.3
TCRAFTBL	0	0.0	0	0.0	44	1.1	2,015	26.7
TEMCO 11A	2	80.1	6	77.4	18	2.7	1,035	24.8
TH55	0	0.0	0	0.0	33	1.5	3,222	30.0
THUNDRAX7	0	0.0	0	0.0	81	0.6	3,130	17.6
TMP SONNAVION	93	43.3	2,046	81.2	367	0.1	14,477	21.5
TOMCAT	0	0.0	0	0.0	32	1.6	3,214	24.6
TRYTEK65	0	0.0	0	0.0	135	0.4	7,515	27.1
TRYTEKK	0	0.0	0	0.0	2	20.0	84	0.6
UNIVACGC1	45	70.8	148	84.3	450	0.1	21,029	17.6
UNIVAR108	27	75.9	177	80.6	1,135	0.0	51,210	11.6
UNIVAR415	0	0.0	0	0.0	1,268	0.0	78,971	13.8
VALENT17	1	102.3	3	102.7	22	2.2	1,140	26.2
VARGA 2150	12	102.4	72	103.0	121	0.4	8,752	15.1

4.8 1990 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN  
UNDER IMC AND VMC CONDITIONS BY SDR MANUFACTURER/MODEL GROUP

SDR MANUFACTURER/ MODEL GROUP	IMC				VMC			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
WACO ASO	0	0.0	0	0.0	8	5.9	595	54.1
WACO GXE	0	0.0	0	0.0	8	6.1	148	39.6
WACO R	0	0.0	0	0.0	8	6.1	273	25.4
WACO UPF7	2	92.1	31	90.3	71	0.7	5,731	45.4
WACO YK	0	0.0	0	0.0	15	3.2	224	27.9
WSK M18	0	0.0	0	0.0	35	1.4	5,833	94.5
WTHRLY201	0	0.0	0	0.0	54	0.9	17,442	19.6
TOTAL	79,528	1.4	3,999,553	3.9	211,123	0.1	30,481,642	1.7

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

FOR ADDITIONAL INFORMATION, SEE APPENDIX B FOR SDR AIRCRAFT GROUP NAMES AND FAA MANUFACTURER/MODEL CODES.



## CHAPTER V

### FUEL CONSUMPTION

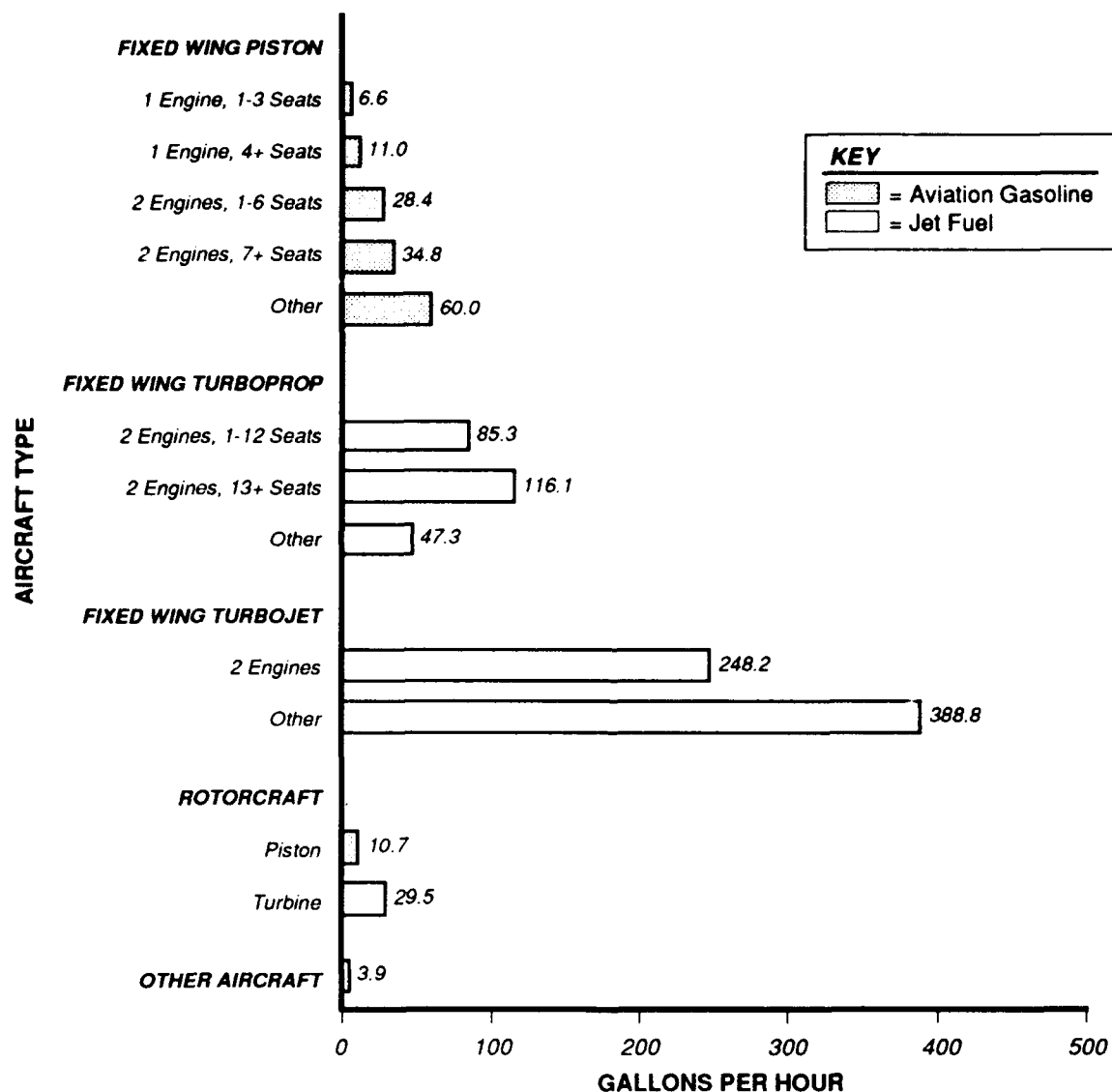
The 1990 general aviation aircraft fleet consumed 1.02 billion gallons of fuel, consisting of 663 million gallons of jet fuel and 353 million gallons of aviation gasoline. Although data on propane fuel use were collected, they are not included because the data collected were not sufficient to provide reasonable estimates. This chapter presents three tables and three figures. Table 5.1 presents consumption statistics. Table 5.2 shows, by aircraft type, fuel consumption by fuel grade, average gallons consumed per hour, fuel use in millions of gallons, and percent of standard error. The final table in this chapter, Table 5.3, presents data on the average rate of fuel consumption and total fuel consumed in millions of gallons by SDR Manufacturer/Model group.

Figures 5.1 and 5.2 show the 1990 general aviation fleet's fuel consumption rates and estimated fuel consumption by aircraft type, respectively. Figure 5.3 depicts the percentage fuel consumption of the general aviation fleet by fuel grade.

Some interesting points concerning fuel consumption are:

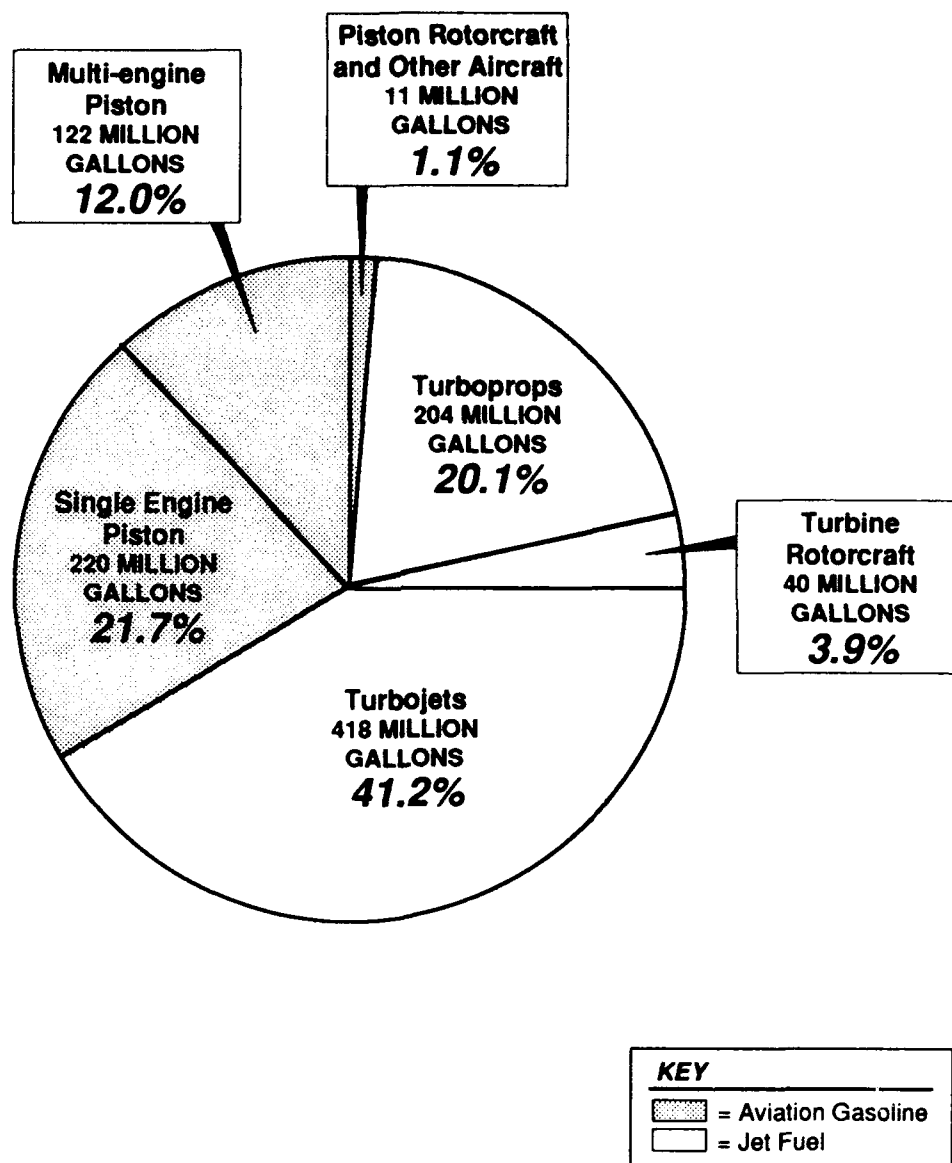
- o Of the 1.02 billion gallons of fuel consumed by the 1990 general aviation fleet, 35 percent was aviation gasoline, and 65 percent was jet fuel.
- o Turbojets, which account for 31 percent of active turbine-engine aircraft, consumed 63 percent of all jet fuel used by the general aviation fleet.
- o Averaging 91 gallons per hour, turboprops consumed 204 million gallons of jet fuel (31 percent of total jet fuel consumed). Overall, turboprops accounted for 20 percent of the aviation fuel consumed in 1990.
- o Fixed wing piston aircraft, with a low average fuel consumption rate of 13 gallons per hour, nevertheless accounted for approximately 34 percent (343 million gallons) of the total fuel consumed by the general aviation fleet in 1990, due to their large numbers. This aircraft type also accounted for 97 percent of the aviation gasoline consumed.
- o Of the 343 million gallons of gasoline consumed by the fixed wing piston aircraft, approximately 10 million gallons were 80 octane gasoline, 68 million gallons were 100 octane gasoline, 253 million gallons were 100 octane low lead gasoline, and 12 million gallons were automobile gasoline.

**Figure 5.1**  
**1990 GENERAL AVIATION**  
**AVERAGE FUEL CONSUMPTION RATES (GALLONS PER HOUR)**  
**BY AIRCRAFT TYPE**



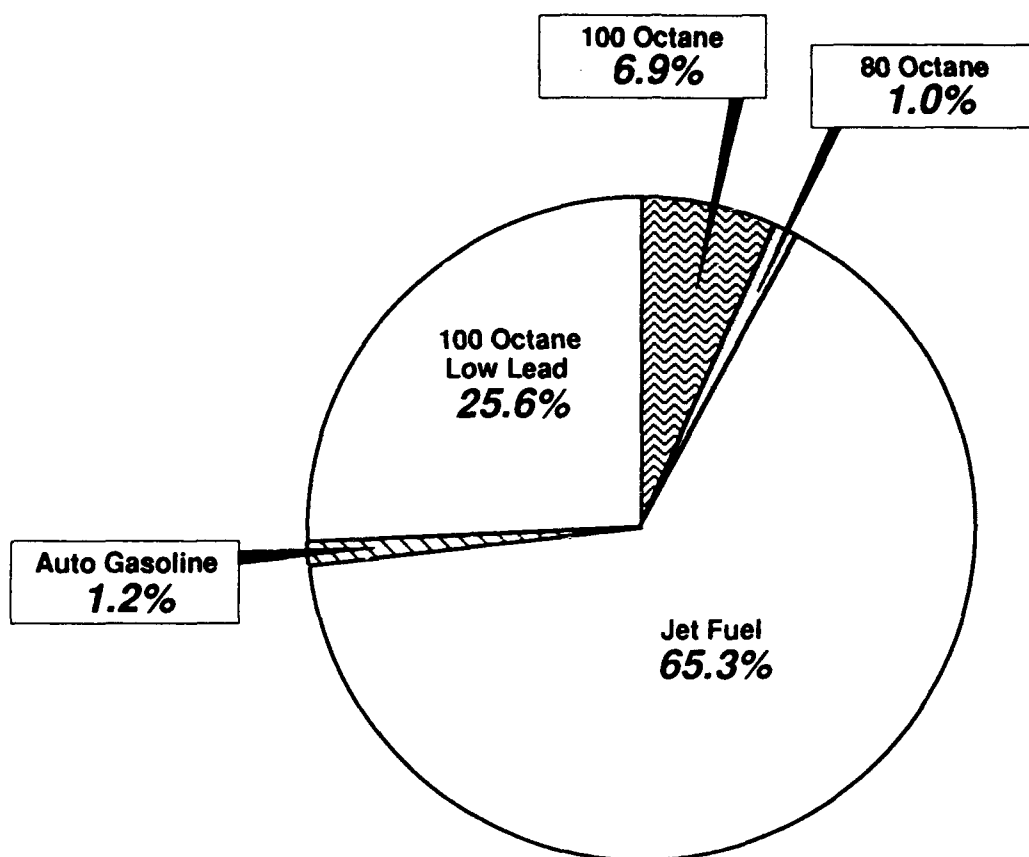
**SOURCE: Table 5.1**

**Figure 5.2**  
**1990 GENERAL AVIATION**  
**ESTIMATED FUEL CONSUMPTION BY AIRCRAFT TYPE**



**SOURCE: Table 5.1**

**Figure 5.3**  
**1990 GENERAL AVIATION FUEL CONSUMPTION**  
**BY FUEL GRADE**



**NOTE:** Propane fuel data were collected but are not included because the data collected were not sufficient to provide reasonable estimates.

**SOURCE:** Table 5.2

5.1 1990 GENERAL AVIATION AVERAGE FUEL CONSUMPTION RATE AND TOTAL FUEL CONSUMED  
BY AIRCRAFT TYPE

AIRCRAFT TYPE	AVERAGE RATE GPH	ESTIMATED FUEL USE (mill gal)	PERCENT STANDARD ERROR
FIXED WING			
FIXED WING - PISTON			
1 ENG: 1-3 SEATS	6.6	63.9	4.0
1 ENG: 4+ SEATS	11.0	156.5	2.8
1 ENGINE: TOTAL	8.5	220.4	2.3
2 ENG: 1-6 SEATS	28.4	63.5	6.6
2 ENG: 7+ SEATS	34.8	55.3	7.3
2 ENGINE: TOTAL	31.7	118.8	4.9
PISTON: OTHER	60.0	3.3	50.6
PISTON: TOTAL	12.9	342.5	2.3
FIXED WING - TURBOPROP			
2 ENG: 1-12 SEATS	85.3	121.7	6.9
2 ENG: 13+ SEATS	116.1	74.6	16.1
2 ENGINE: TOTAL	95.7	196.3	7.5
TURBOPROP: OTHER	47.3	8.0	10.8
TURBOPROP: TOTAL	90.8	204.4	7.2

5.1 1990 GENERAL AVIATION AVERAGE FUEL CONSUMPTION RATE AND TOTAL FUEL CONSUMED  
BY AIRCRAFT TYPE

AIRCRAFT TYPE	AVERAGE RATE GPH	ESTIMATED FUEL USE (mil gal)	PERCENT STANDARD ERROR
FIXED WING - TURBOJET			
2 ENGINE: TOTAL	248.2	357.3	7.2
TURBOJET: OTHER	388.8	60.8	12.7
TURBOJET: TOTAL	265.2	418.1	6.5
FIXED WING: TOTAL	49.0	965.0	3.3
ROTORCRAFT			
PISTON	10.7	9.5	10.6
TURBINE	29.5	40.3	9.6
ROTORCRAFT: TOTAL	19.8	49.8	8.1
OTHER AIRCRAFT (*)	3.9 (*)	1.1 (*)	10.5 (*)
TOTAL	45.8	1016.0	3.2
TOTAL: JET FUEL	139.7	662.9	4.7
TOTAL: AVIATION GASOLINE	12.7	353.1	2.3

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

(\*) PROPANE FUEL DATA WERE COLLECTED BUT ARE NOT INCLUDED BECAUSE THE DATA COLLECTED WERE NOT SUFFICIENT TO PROVIDE REASONABLE ESTIMATES.

5.2 1990 GENERAL AVIATION AVERAGE FUEL CONSUMPTION RATE AND TOTAL FUEL CONSUMED  
BY FUEL GRADE BY AIRCRAFT TYPE

PAGE 1 OF 3

AIRCRAFT TYPE	FUEL GRADE					TOTAL
	80 OCTANE	100 OCTANE	100 LOWLEAD	AUTO GAS	JET FUEL	PROPANE
FIXED WING						
FIXED WING - PISTON						
1 ENG: 1-3 SEATS						
AVERAGE GPH	5.8	6.9	7.0	5.6	N/A	N/A
FUEL USE (mil gal)	8.5	8.3	38.5	8.6	N/A	N/A
% STD. ERROR	5.7	16.4	12.7	5.6	N/A	N/A
						6.6
						63.9
						4.0
1 ENG: 4+ SEATS						
AVERAGE GPH	7.6	12.7	10.8	8.9	N/A	N/A
FUEL USE (mil gal)	1.3	27.2	124.5	3.4	N/A	N/A
% STD. ERROR	10.0	8.7	6.7	17.5	N/A	N/A
						11.0
						156.5
						2.8
1 ENGINE: TOTAL						
AVERAGE GPH	5.9	9.4	9.1	5.8	N/A	N/A
FUEL USE (mil gal)	9.8	35.5	163.0	12.0	N/A	N/A
% STD. ERROR	5.1	7.7	5.9	6.5	N/A	N/A
						8.5
						220.4
						2.3
2 ENG: 1-6 SEATS						
AVERAGE GPH	9.0	29.3	28.5	9.1	N/A	N/A
FUEL USE (mil gal)	0.3	14.2	49.2	0.0	N/A	N/A
% STD. ERROR	36.3	12.4	11.2	46.5	N/A	N/A
						28.4
						63.5
						6.6
2 ENG: 7+ SEATS						
AVERAGE GPH	42.0	35.5	34.3	0.0	N/A	N/A
FUEL USE (mil gal)	0.1	17.8	37.6	0.0	N/A	N/A
% STD. ERROR	49.0	18.4	13.6	0.0	N/A	N/A
						34.8
						55.3
						7.3
2 ENGINE: TOTAL						
AVERAGE GPH	9.9	33.2	31.4	9.1	N/A	N/A
FUEL USE (mil gal)	0.3	32.0	86.8	0.0	N/A	N/A
% STD. ERROR	29.7	11.7	8.7	46.5	N/A	N/A
						31.7
						118.8
						4.9
PISTON: OTHER						
AVERAGE GPH	0.0	0.0	60.0	0.0	N/A	(*)
FUEL USE (mil gal)	0.0	0.0	3.3	0.0	N/A	(*)
% STD. ERROR	0.0	0.0	50.6	0.0	N/A	(*)
						60.0
						3.3
						50.6
PISTON: TOTAL						
AVERAGE GPH	5.9	15.1	13.8	5.8	N/A	N/A
FUEL USE (mil gal)	10.1	67.5	253.1	12.0	N/A	N/A
% STD. ERROR	5.0	6.8	4.9	6.5	N/A	N/A
						12.9
						342.5
						2.3

5.2 1990 GENERAL AVIATION AVERAGE FUEL CONSUMPTION RATE AND TOTAL FUEL CONSUMED  
BY FUEL GRADE BY AIRCRAFT TYPE

PAGE 2 OF 3

AIRCRAFT TYPE	FUEL GRADE					TOTAL
	80 OCTANE	100 OCTANE	100 LOWLEAD	AUTO GAS	JET FUEL PROPANE	
FIXED WING - TURBOPROP						
2 ENG: 1-12 SEATS						
AVERAGE GPH	N/A	N/A	N/A	N/A	85.3	85.3
FUEL USE (mil gal)	N/A	N/A	N/A	N/A	121.7	121.7
% STD. ERROR	N/A	N/A	N/A	N/A	6.9	6.9
2 ENG: 13+ SEATS						
AVERAGE GPH	N/A	N/A	N/A	N/A	116.2	116.1
FUEL USE (mil gal)	N/A	N/A	N/A	N/A	74.6	74.6
% STD. ERROR	N/A	N/A	N/A	N/A	16.1	16.1
2 ENGINE: TOTAL						
AVERAGE GPH	N/A	N/A	N/A	N/A	95.7	95.7
FUEL USE (mil gal)	N/A	N/A	N/A	N/A	196.3	196.3
% STD. ERROR	N/A	N/A	N/A	N/A	7.5	7.5
TURBOPROP: OTHER						
AVERAGE GPH	N/A	N/A	N/A	N/A	47.2	47.3
FUEL USE (mil gal)	N/A	N/A	N/A	N/A	8.0	8.0
% STD. ERROR	N/A	N/A	N/A	N/A	31.6	10.8
TURBOPROP: TOTAL						
AVERAGE GPH	N/A	N/A	N/A	N/A	90.8	90.8
FUEL USE (mil gal)	N/A	N/A	N/A	N/A	204.4	204.4
% STD. ERROR	N/A	N/A	N/A	N/A	7.3	7.2
FIXED WING - TURBOJET						
2 ENGINE: TOTAL						
AVERAGE GPH	N/A	N/A	N/A	N/A	248.1	248.2
FUEL USE (mil gal)	N/A	N/A	N/A	N/A	357.3	357.3
% STD. ERROR	N/A	N/A	N/A	N/A	7.3	7.2
TURBOJET: OTHER						
AVERAGE GPH	N/A	N/A	N/A	N/A	388.8	388.8
FUEL USE (mil gal)	N/A	N/A	N/A	N/A	60.8	60.8
% STD. ERROR	N/A	N/A	N/A	N/A	13.4	12.7
TURBOJET: TOTAL						
AVERAGE GPH	N/A	N/A	N/A	N/A	265.1	265.2
FUEL USE (mil gal)	N/A	N/A	N/A	N/A	418.1	418.1
% STD. ERROR	N/A	N/A	N/A	N/A	6.5	6.5



5.2 1990 GENERAL AVIATION AVERAGE FUEL CONSUMPTION RATE AND TOTAL FUEL CONSUMED  
BY FUEL GRADE BY AIRCRAFT TYPE

PAGE 3 OF 3

AIRCRAFT TYPE	FUEL GRADE					TOTAL
	80 OCTANE	100 OCTANE	100 LOWLEAD	AUTO GAS	JET FUEL PROPANE	
FIXED WING: TOTAL						
AVERAGE GPH	5.9	15.1	13.8	5.8	165.8	N/A
FUEL USE (mil gal)	10.1	67.5	253.1	12.0	622.5	N/A
% STD. ERROR	5.0	6.8	4.9	6.5	5.0	N/A
49.0						
965.0						
3.3						
ROTORCRAFT						
PISTON						
AVERAGE GPH	4.0	9.2	9.7	6.6	N/A	N/A
FUEL USE (mil gal)	0.0	1.6	6.8	0.2	N/A	N/A
% STD. ERROR	63.3	27.3	13.3	32.8	N/A	N/A
10.7						
9.5						
10.6						
TURBINE						
AVERAGE GPH	N/A	N/A	N/A	N/A	29.5	N/A
FUEL USE (mil gal)	N/A	N/A	N/A	N/A	40.3	N/A
% STD. ERROR	N/A	N/A	N/A	N/A	9.6	N/A
29.5						
40.3						
9.6						
ROTORCRAFT: TOTAL						
AVERAGE GPH	4.0	9.2	9.7	6.6	29.5	N/A
FUEL USE (mil gal)	0.0	1.6	6.8	0.2	40.3	N/A
% STD. ERROR	63.3	27.3	13.3	32.8	9.6	N/A
19.8						
49.8						
8.1						
OTHER AIRCRAFT						
AVERAGE GPH	6.0	3.3	4.1	3.2	0.0	(*)
FUEL USE (mil gal)	0.0	0.3	0.4	0.1	0.0	(*)
% STD. ERROR	17.7	16.8	132.5	73.5	0.0	(*)
3.9						
1.1						
10.5						
TOTAL						
AVERAGE GPH	5.9	14.6	13.5	5.8	139.7	(*)
FUEL USE (mil gal)	10.1	69.4	260.3	12.3	662.8	(*)
% STD. ERROR	5.0	6.7	4.8	6.4	4.7	(*)
45.8						
1016.0						
3.2						

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

THE NOTATION "N/A" DENOTES THAT THE FUEL GRADE IS NOT APPLICABLE FOR THE SPECIFIED AIRCRAFT TYPE.

(\*) PROPANE FUEL DATA WERE COLLECTED BUT ARE NOT INCLUDED BECAUSE THE DATA COLLECTED WERE NOT SUFFICIENT TO PROVIDE REASONABLE ESTIMATES.

5.3 1990 GENERAL AVIATION AVERAGE FUEL CONSUMPTION RATE AND TOTAL FUEL CONSUMED  
BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

SDR MANUFACTURER/MODEL GROUP	AVERAGE RATE GPH	ESTIMATED FUEL USE (mil gal)	PERCENT STANDARD ERROR
OTHER 1	6.8	4.5	14.9
OTHER 2	11.2	1.7	20.5
OTHER 3	22.6	0.4	97.0
OTHER 4	24.7	0.4	54.8
OTHER 5	60.0	3.3	50.6
OTHER 6	75.8	17.2	35.7
OTHER 7	94.2	19.5	45.2
OTHER 8	43.8	1.2	36.8
OTHER 9	480.1	51.1	33.3
OTHER 10	411.5	15.9	35.3
OTHER 11	8.0	0.3	45.7
OTHER 12	29.2	4.4	50.3
OTHER 13	3.5	0.4	20.8
ADAMS A50S	20.0	0.0	24.5
AERORSJ2	10.4	0.0	51.6
AEROSPAS355	49.2	0.4	53.3
AEROSPAS316	0.0	0.0	0.0
AEROSPAS365	0.0	0.0	0.0
AGUSTA205	0.0	0.0	0.0
AGUSTAA109	0.0	0.0	0.0
AIRPTSA	0.0	0.0	0.0

5.3 1990 GENERAL AVIATION AVERAGE FUEL CONSUMPTION RATE AND TOTAL FUEL CONSUMED  
BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

SDR MANUFACTURER/MODEL GROUP	AVERAGE RATE GPH	ESTIMATED FUEL USE (mil gal)	PERCENT STANDARD ERROR
AIRSPC18	10.6	0.0	25.3
AIRTRCAT300	0.0	0.0	0.0
AIRTRCAT400	0.0	0.0	0.0
AIRTRCAT500	50.1	1.5	17.7
AMD FALC10	224.6	9.2	9.6
AMD FALC20	328.3	22.2	18.0
AMD FALC50	326.6	16.4	13.6
ARCNEH37	0.0	0.0	0.0
ARCTICS1B1	5.1	0.0	38.1
ARONCA58	0.0	0.0	0.0
ARONCAC3	4.3	0.0	21.5
AVIANWSRYHWK	0.0	0.0	0.0
BAG B206	45.0	2.0	31.4
BALWKSFIREFY	261.2	7.3	9.8
BEAVIA7	4.4	0.1	22.5
BEECH 100	7.1	0.3	24.0
BEECH 18	49.8	5.0	35.1
BEECH 200	124.4	36.2	21.2
BEECH 300	10.0	2.7	13.2
BEECH 35	13.9	4.1	12.0
BEECH 45	14.7	5.5	8.3

5.3 1990 GENERAL AVIATION AVERAGE FUEL CONSUMPTION RATE AND TOTAL FUEL CONSUMED  
BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

SDR MANUFACTURER/MODEL GROUP	AVERAGE RATE GPH	ESTIMATED FUEL USE (mil gal)	PERCENT STANDARD ERROR
BEECH 55	40.0	0.4	66.5
BEECH 58	40.0	0.2	13.2
BEECH 65	40.0	1.9	14.7
BEECH 77	15.6	1.0	19.4
BEECH 90	40.0	0.6	36.7
BEECH 99	15.5	0.7	21.0
BELL 206	0.0	0.0	0.0
BELL 222	0.0	0.0	0.0
BELL 47	0.0	0.0	0.0
BLANCA1413	5.0	0.0	23.9
BLANCA17	0.0	0.0	0.0
BLANCA8	4.0	0.0	47.7
BOEING727	30.0	0.8	60.1
BOLKMS105	15.6	0.9	18.8
BRAERODH125	0.0	0.0	0.0
BRWSTRFLEET2	3.0	0.0	24.1
BOKER 131	0.0	0.0	0.0
CAMRONMODELO	0.0	0.0	0.0
CESSNA120	96.9	2.1	26.3
CESSNA150	5.4	0.6	14.0
CESSNA172	9.0	2.2	41.7

5.3 1990 GENERAL AVIATION AVERAGE FUEL CONSUMPTION RATE AND TOTAL FUEL CONSUMED  
BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

SDR MANUFACTURER/MODEL GROUP	AVERAGE RATE GPH	ESTIMATED FUEL USE (mil gal)	PERCENT STANDARD ERROR
CESSNA177	8.1	0.5	17.0
CESSNA182	12.0	2.8	13.7
CESSNA188	13.9	3.0	11.0
CESSNA195	0.0	0.0	0.0
CESSNA206	0.0	0.0	0.0
CESSNA208	8.3	1.6	33.5
CESSNA303	15.4	10.2	8.2
CESSNA310	11.5	0.5	25.1
CESSNA335	32.0	0.6	44.9
CESSNA337	0.0	0.0	0.0
CESSNA401	33.9	4.3	13.2
CESSNA404	34.1	10.2	23.0
CESSNA414	0.0	0.0	0.0
CESSNA425	42.8	7.7	13.4
CESSNA500	75.6	6.2	13.0
CESSNA650	136.3	7.9	15.1
CESSNAUC94	30.0	0.0	40.3
CHILD S2	9.0	0.0	20.5
CNDALRCL600	7.7	0.1	18.0
COMWTH185	0.0	0.0	0.0
CURTISJR	10.6	0.2	33.2

5.3 1990 GENERAL AVIATION AVERAGE FUEL CONSUMPTION RATE AND TOTAL FUEL CONSUMED  
BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

SDR MANUFACTURER/MODEL GROUP	AVERAGE RATE GPH	ESTIMATED FUEL USE (mil gal)	PERCENT STANDARD ERROR
CURTISTRVAIR	0.0	0.0	0.0
CVAC 440	0.0	0.0	0.0
CVAC STC580	23.8	0.1	18.5
DHAV DHC1	10.0	0.0	55.3
DHAV DHC3	0.0	0.0	0.0
DHAV DHC6	0.0	0.0	0.0
DORNERDO228	7.2	0.0	24.2
DOUG DC3	0.0	0.0	0.0
EAGLE DW	0.0	0.0	0.0
EAGLEBC7	0.0	0.0	0.0
EMB 110	4.4	0.0	22.6
ENSTMF28	12.5	1.8	21.8
FRCHLD24	10.0	0.0	28.8
FRCHLDF27	0.0	0.0	0.0
GALAXYGX7	12.1	0.1	38.1
GLASER300	0.0	0.0	0.0
GLASFL201	3.8	0.0	17.9
GROB 103CAT	0.0	0.0	0.0
GROB ASTIR	3.3	0.0	23.6
GRUMANSAL6	10.1	0.1	19.1
GRUMAVAA5	6.6	0.3	28.3

5.3 1990 GENERAL AVIATION AVERAGE FUEL CONSUMPTION RATE AND TOTAL FUEL CONSUMED  
BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

SDR MANUFACTURER/MODEL GROUP	AVERAGE RATE GPH	ESTIMATED FUEL USE (mil gal)	PERCENT STANDARD ERROR
GRUMAVG164	500.0	6.3	7.7
GRUMAVTBM	42.0	0.2	49.0
GULSTM500	13.0	0.6	13.4
GULSTM560	0.0	0.0	0.0
GULSTM680TP	43.1	0.9	44.6
GULSTM690TP	73.3	0.4	15.9
GULSTMAA5	8.0	0.3	14.1
GULSTMG159	394.5	37.2	31.7
GULSTMG73	26.6	0.3	30.3
H23/HTE	18.9	0.1	12.4
HELIO H295	0.0	0.0	0.0
HILLERFH1100	0.0	0.0	0.0
HSPAVNHA200	19.1	0.1	22.1
HUGHES369	11.0	2.2	28.3
HWKSLYDH125	0.0	0.0	0.0
INTRCP200	10.3	0.0	31.0
ISRAEL1123	316.4	2.8	18.3
JBMSTRDGA15	230.3	13.9	12.5
LEAR 23	0.0	0.0	0.0
LEAR 25	154.7	10.3	52.2
LEAR 55	188.3	28.3	17.7

5.3 1990 GENERAL AVIATION AVERAGE FUEL CONSUMPTION RATE AND TOTAL FUEL CONSUMED  
BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

SDR MANUFACTURER/MODEL GROUP	AVERAGE RATE GPH	ESTIMATED FUEL USE (mil gal)	PERCENT STANDARD ERROR
LKHEED1329	0.0	0.0	0.0
LKHEEDP2V	0.0	0.0	0.0
LKHEEDT33	0.0	0.0	0.0
MACDOUG369	5.4	0.2	21.4
MAULE M4	0.0	0.0	0.0
MAULE M6	10.1	0.3	14.5
MEYERSOTW	5.4	0.0	24.1
MILITARY47	0.0	0.0	0.0
MNNITEM18	5.6	0.0	53.0
MOONEYM20	19.2	0.1	25.2
MTSBSIMU2	0.0	0.0	0.0
MULTECD16	179.1	3.9	10.1
NAMER F51	0.0	0.0	0.0
NAMER T6	18.5	0.1	38.0
NAVAL N3N	0.0	0.0	0.0
NORD 3202	0.0	0.0	0.0
NORWST65	8.8	0.0	31.3
ORLHEL58	0.0	0.0	0.0
PICARDAX6	19.2	0.2	21.5
PIPER 600	0.0	0.0	0.0
PIPER J3	3.9	0.0	61.3



5.3 1990 GENERAL AVIATION AVERAGE FUEL CONSUMPTION RATE AND TOTAL FUEL CONSUMED  
BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

SDR MANUFACTURER/MODEL GROUP	AVERAGE RATE GPH	ESTIMATED FUEL USE (mil gal)	PERCENT STANDARD ERROR
PIPER J5	4.8	0.0	37.3
PIPER PA14	6.0	0.5	17.9
PIPER PA16	4.5	0.0	16.6
PIPER PA18	4.2	0.0	30.9
PIPER PA22	6.7	0.4	11.8
PIPER PA24	24.9	9.4	15.7
PIPER PA28	6.8	4.9	9.8
PIPER PA31	19.8	5.4	12.3
PIPER PA32	76.9	8.6	13.5
PIPER PA36	21.2	7.5	18.2
PIPER PA42	6.0	1.6	18.2
PIPER PA46	12.9	2.0	29.4
RAVEN RX6	7.0	0.0	38.4
RAVEN S55	0.0	0.0	0.0
RAVEN S60	0.0	0.0	0.0
RKWELL500	0.0	0.0	0.0
RKWELLNA265	40.0	0.2	21.2
ROLSCHLS	7.8	2.0	16.0
RYAN STA	9.7	0.0	26.2
SCHMPDISCUS	120.0	2.0	0.0
SCHLERASW15	0.0	0.0	0.0

5.3 1990 GENERAL AVIATION AVERAGE FUEL CONSUMPTION RATE AND TOTAL FUEL CONSUMED  
BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

SDR MANUFACTURER/MODEL GROUP	AVERAGE RATE GPH	ESTIMATED FUEL USE (mil gal)	PERCENT STANDARD ERROR
SCHLERASN20	0.0	0.0	0.0
SCHLERKA6	0.0	0.0	0.0
SCHWZERG164	11.1	0.2	31.6
SCHWZERSG2	13.0	0.3	15.2
SKRSKYS55	0.0	0.0	0.0
SKRSKYS58T	0.0	0.0	0.0
SKRSKYS76	0.0	0.0	0.0
SMITH 600	9.0	0.1	21.1
SNIAS 350	43.1	0.9	30.7
SOCATAMS894	0.0	0.0	0.0
SOCATATB10	12.0	0.0	13.4
SPERTHCIRRUS	9.0	0.1	32.8
SPERTHVENTUS	0.0	0.0	0.0
STEROSSD3	0.0	0.0	0.0
STINSONJR	0.0	0.0	0.0
STINSONV77	9.0	0.0	34.1
SUPAC V	12.0	0.0	15.8
SWRNGNSA26	0.0	0.0	0.0
TCRAFTBC	4.7	0.1	27.7
TEMCO 11A	4.2	0.0	47.5
TMP SONNAVION	12.2	0.0	32.6

5.3 1990 GENERAL AVIATION AVERAGE FUEL CONSUMPTION RATE AND TOTAL FUEL CONSUMED  
BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

SDR MANUFACTURER/MODEL GROUP	AVERAGE RATE GPH	ESTIMATED FUEL USE (mil gal)	PERCENT STANDARD ERROR
TRYTEK	0.0	0.0	0.0
UNIVAR415	7.5	0.2	21.1
WACO ASO	3.6	0.0	26.4
WACO UPF7	7.0	0.0	36.1
WTERLY201	0.0	0.0	0.0
TOTAL	45.8	1018.1	0.0

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.  
FOR ADDITIONAL INFORMATION, SEE APPENDIX B FOR SDR AIRCRAFT GROUP NAMES AND FAA  
MANUFACTURER/MODEL CODES.

## CHAPTER VI

### AIRFRAME HOURS AND ENGINE ACTIVITY

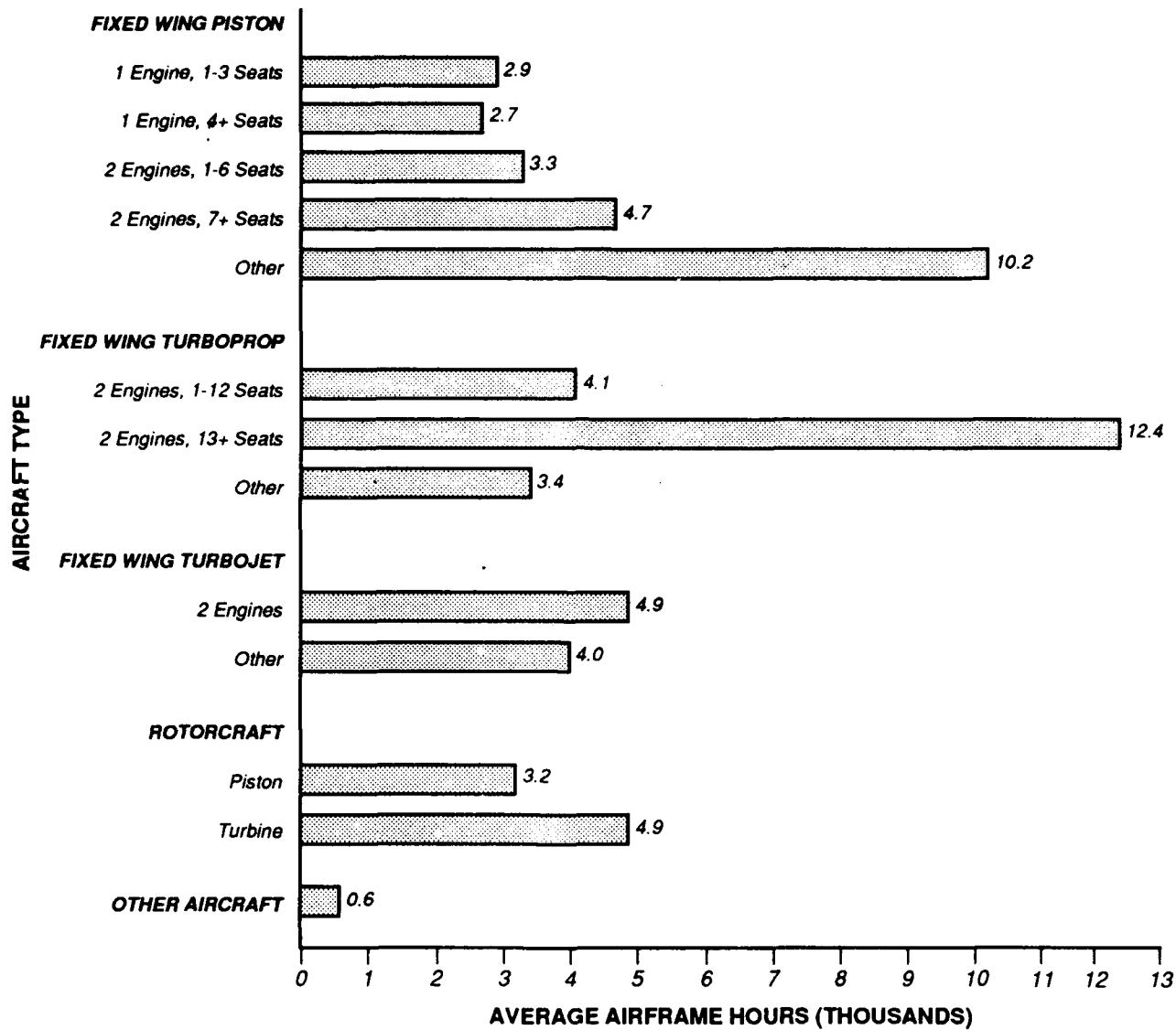
The subject of aircraft aging is becoming increasingly important because of recent questions raised about the safety of commercial air carriers relative to the age of their aircraft. Similar questions might be asked of the general aviation fleet. Data in this chapter can serve as input to studies correlating age and safety.

This chapter presents three tables and one figure. Table 6.1 gives data on the average airframe hours per active aircraft by aircraft type. Tables 6.2 and 6.3 show the average airframe hours per active aircraft by SDR Manufacturer/Model Group, and the number of engines on active aircraft and the average hours per engine for each aircraft by engine SDR Manufacturer/Model Group, respectively. Figure 6.1 graphically displays the data provided in Table 6.1.

Major findings of this chapter include:

- o The average lifetime airframe hours for the 1990 active general aviation population are approximately 2,902 hours. In contrast, the average lifetime airframe hours for the two engine turboprop with 13 or more seats and the piston "other" aircraft, which are generally more than two-engine aircraft types, are more than triple the average lifetime airframe hours of the 1990 active general aviation fleet. The two engine turboprop aircraft with 13 or more seats averaged 12,427 lifetime hours, and the piston "other" aircraft type averaged 10,192 lifetime hours.
- o The estimated total airframe hours of the 1990 general aviation fleet is more than 635 million hours.
- o Overall, the average airframe hours for piston fixed wing aircraft are below the average, while those for turboprop, turbojet, and rotorcraft (both piston and turbine engine) are higher than the average.
- o The average hours per engine data presented in Table 6.3 vary considerably among the different SDR aircraft engine manufacturers.

**Figure 6.1**  
**1990 GENERAL AVIATION AVERAGE AIRFRAME HOURS**  
**PER ACTIVE AIRCRAFT BY AIRCRAFT TYPE**



**SOURCE: Table 6.1**

6.1 1990 GENERAL AVIATION TOTAL AND AVERAGE AIRFRAME HOURS PER ACTIVE AIRCRAFT  
BY AIRCRAFT TYPE

PAGE 1 OF 2

AIRCRAFT TYPE	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL AIRFRAME HOURS	PERCENT STANDARD ERROR	ESTIMATE AVERAGE AIRFRAME HOURS	PERCENT STANDARD ERROR
FIXED WING									
FIXED WING - PISTON									
1 ENG: 1-3 SEATS	88,005	60,507	1.3	68.8	0.9	173,845,424	2.3	2,858.0	2.1
1 ENG: 4+ SEATS	119,379	104,566	0.6	87.6	0.6	280,079,232	1.7	2,685.7	1.6
1 ENGINE: TOTAL	207,384	165,073	0.6	79.6	0.5	453,924,768	1.4	2,747.1	1.3
2 ENG: 1-6 SEATS	17,600	15,186	1.6	86.3	1.4	51,001,780	4.0	3,319.8	3.3
2 ENG: 7+ SEATS	8,892	7,421	2.4	83.5	2.0	39,251,500	6.1	4,746.7	3.6
2 ENGINE: TOTAL	26,492	22,606	1.3	85.3	1.1	90,253,264	3.5	3,719.9	2.5
PISTON: OTHER	182	94	29.8	51.6	15.4	985,958	32.4	10,192.1	24.2
PISTON: TOTAL	234,058	187,773	0.6	80.2	0.5	545,164,032	1.3	2,854.4	1.1
FIXED WING - TURBOPROP									
2 ENG: 1-12 SEATS	4,623	4,320	1.6	93.4	1.5	17,890,664	6.3	4,117.2	5.5
2 ENG: 13+ SEATS	1,289	937	6.9	72.7	5.0	12,477,612	14.2	12,427.0	11.2
2 ENGINE: TOTAL	5,912	5,257	1.8	88.9	1.6	30,368,274	6.9	5,181.8	5.1
TURBOPROP: OTHER	499	395	7.1	79.2	5.6	1,509,057	16.2	3,376.6	10.3
TURBOPROP: TOTAL	6,411	5,652	1.7	88.2	1.5	31,877,332	6.6	5,053.2	4.9

6.1 1990 GENERAL AVIATION TOTAL AND AVERAGE AIRFRAME HOURS PER ACTIVE AIRCRAFT  
BY AIRCRAFT TYPE

PAGE 2 OF 2

AIRCRAFT TYPE	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL AIRFRAME HOURS	PERCENT STANDARD ERROR	ESTIMATE AVERAGE AIRFRAME HOURS	PERCENT STANDARD ERROR
FIXED WING - TURBOJET									
2 ENGINE: TOTAL	4,305	3,950	2.0	91.8	1.8	19,394,898	5.0	4,911.6	4.6
TURBOJET: OTHER	586	425	8.2	72.5	6.0	2,087,210	14.1	3,984.4	12.0
TURBOJET: TOTAL	4,891	4,374	2.0	89.4	1.8	21,482,108	4.7	4,825.7	4.4
FIXED WING: TOTAL	245,360	197,800	0.5	80.6	0.4	598,523,328	1.2	2,943.3	1.1
ROTORCRAFT									
PISTON	5,802	3,459	5.3	59.6	3.1	11,761,869	10.2	3,189.1	7.6
TURBINE	4,620	3,938	3.1	85.2	2.7	20,803,534	10.7	4,938.2	8.0
ROTORCRAFT: TOTAL	10,422	7,397	3.0	71.0	2.1	32,565,404	7.8	4,117.9	5.8
OTHER AIRCRAFT	10,562	7,032	3.0	66.6	2.0	4,218,389	7.5	577.8	6.9
TOTAL	266,344	212,229	0.5	79.7	0.4	635,307,136	1.2	2,902.2	1.1

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

6.2 1990 GENERAL AVIATION TOTAL AND AVERAGE AIRFRAME HOURS PER ACTIVE AIRCRAFT  
BY SDR MANUFACTURER/MODEL GROUP

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SDR MANUFACTURER/ MODEL GROUP	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL AIRFRAME HOURS	PERCENT STANDARD ERROR	ESTIMATE AVERAGE AIRFRAME HOURS	PERCENT STANDARD ERROR
OTHER 1	18,487	9,583	5.4	51.8	2.8	6,023,631	13.6	628.6	12.5
OTHER 2	1,937	1,221	9.6	63.1	6.0	2,521,688	19.8	2,064.5	17.3
OTHER 3	308	123	33.4	39.9	13.3	359,625	67.7	2,925.8	59.0
OTHER 4	249	118	37.3	47.4	17.7	1,393,253	45.5	11,797.5	25.9
OTHER 5	123	69	39.5	56.4	22.3	425,018	65.8	6,130.6	52.7
OTHER 6	441	396	7.9	89.8	7.1	2,410,390	39.3	6,086.2	38.5
OTHER 7	277	182	25.4	65.7	16.6	3,641,989	42.1	20,022.3	33.6
OTHER 8	203	109	24.5	53.9	13.2	710,939	29.9	6,501.3	17.1
OTHER 9	425	335	12.3	78.9	9.7	2,139,954	25.7	6,384.8	22.5
OTHER 10	307	196	16.7	63.8	10.7	733,107	31.1	3,745.5	26.2
OTHER 11	1,942	893	13.5	46.0	6.2	292,152	48.7	327.3	46.8
OTHER 12	285	223	14.5	78.2	11.4	1,406,152	45.8	6,306.2	43.4
OTHER 13	3,667	2,226	7.1	60.7	4.3	748,040	17.4	336.0	15.9
ADAMS A50S	137	88	19.2	64.5	12.4	93,438	143.3	1,057.2	142.0
AEROKSJ2	34	14	35.5	41.5	14.7	3,862	39.8	273.9	18.1
AEROSPAS355	107	103	12.7	96.0	12.1	48,197	118.5	469.2	117.9
AEROSPAS316	78	78	0.0	100.0	0.0	2,550,692	66.0	32,701.2	66.0
AEROSPAS365	28	28	0.0	100.0	0.0	29,837	42.9	1,065.6	42.9
AGUSTA205	27	22	24.4	80.0	19.5	179,636	27.1	8,316.5	11.8
AGUSTAA109	54	54	0.0	100.0	0.0	82,196	11.0	1,522.1	11.0
AIRPTSA	208	126	8.5	60.5	5.2	344,898	10.7	2,741.8	6.5



6.2 1990 GENERAL AVIATION TOTAL AND AVERAGE AIRFRAME HOURS PER ACTIVE AIRCRAFT  
BY SDR MANUFACTURER/MODEL GROUP

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SDR MANUFACTURER/ MODEL GROUP	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL AIRFRAME HOURS	PERCENT STANDARD ERROR	ESTIMATE AVERAGE AIRFRAME HOURS	PERCENT STANDARD ERROR
AIRSPC18	18	14	14.4	75.0	10.8	12,449	19.7	922.1	13.4
AIRTRCAT300	429	403	7.0	94.0	6.5	1,373,168	14.2	3,405.2	12.4
AIRTRCAT400	116	111	6.2	95.5	5.9	233,068	29.7	2,103.1	29.1
AIRTRCAT500	75	73	7.0	97.1	6.8	62,959	25.8	864.1	24.9
AMD FALC10	110	110	0.0	100.0	0.0	557,653	10.4	5,069.6	10.4
AMD FALC20	187	169	8.0	90.6	7.2	1,156,470	22.3	6,825.7	20.8
AMD FALC50	128	113	9.2	88.6	8.1	337,838	15.1	2,979.1	12.1
AMTR TMK	21	0	0.0	0.0	0.0	0	0.0	0.0	0.0
ABCRNEH37	45	0	0.0	0.0	0.0	0	0.0	0.0	0.0
ARCTICS1A	89	31	26.4	34.6	9.1	86,595	28.5	2,810.8	10.7
ARCTICS1B1	26	11	27.1	44.0	11.9	11,118	30.7	971.8	14.5
ARONCA15	199	109	15.1	55.0	8.3	270,857	18.9	2,476.0	11.4
ARONCA58	149	90	12.1	60.1	7.3	251,435	15.5	2,808.8	9.8
ARONCA65	143	90	10.4	62.8	6.6	277,627	14.2	3,090.7	9.6
ARONCAC3	56	14	36.8	24.7	9.1	19,980	44.4	1,442.4	24.8
AVIANWFALCON	23	6	107.4	25.0	26.8	1,390	107.9	241.8	10.8
AVIANWSKYHWK	46	36	16.8	77.6	13.1	14,858	30.1	416.0	24.9
AYRES S2	832	676	10.1	81.2	8.2	2,936,554	13.6	4,311.2	9.3
BAG B206	24	21	23.1	89.1	20.6	96,884	26.0	4,532.2	12.0
BAG DH125	72	71	3.0	98.2	3.0	327,450	8.3	4,632.1	7.7
BALWKSFIREFY	1,776	1,381	7.6	77.8	5.9	312,614	13.6	226.3	11.3

6.2 1990 GENERAL AVIATION TOTAL AND AVERAGE AIRFRAME HOURS PER ACTIVE AIRCRAFT  
BY SDR MANUFACTURER/MODEL GROUP

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SDR MANUFACTURER/ MODEL GROUP	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL AIRFRAME HOURS	PERCENT STANDARD ERROR	ESTIMATE AVERAGE AIRFRAME HOURS	PERCENT STANDARD ERROR
BRAVIA11	829	397	16.7	47.9	8.0	854,742	19.2	2,154.0	9.3
BRAVIA7	3,542	2,041	9.1	57.6	5.2	6,317,813	12.8	3,095.1	9.0
BRAVIA8	224	199	5.0	88.6	4.4	275,395	10.1	1,387.2	8.8
BEECH 100	226	222	3.7	98.1	3.6	1,105,087	10.4	4,983.2	9.7
BEECH 17	201	131	21.7	65.0	14.1	277,597	24.3	2,124.7	10.9
BEECH 18	793	593	12.0	74.7	8.9	6,887,079	14.7	11,554.6	8.3
BEECH 1900	143	128	19.1	89.8	17.2	1,416,060	27.4	11,026.6	19.7
BEECH 200	804	804	0.0	100.0	0.0	3,002,017	6.9	3,733.9	6.9
BEECH 23	2,680	2,509	2.7	93.6	2.6	5,937,177	6.1	2,366.2	5.5
BEECH 300	159	134	9.8	84.2	8.2	206,761	15.2	1,544.2	11.6
BEECH 33	2,032	2,022	0.7	99.5	0.7	4,794,543	7.3	2,371.2	7.3
BEECH 35	6,756	5,961	2.9	88.2	2.5	22,236,432	4.9	3,730.5	4.0
BEECH 36	2,380	2,290	2.3	96.2	2.2	3,927,481	7.4	1,714.9	7.1
BEECH 45	309	290	6.3	93.7	5.9	2,004,300	16.4	6,921.4	15.2
BEECH 50	324	168	29.4	51.9	15.3	2,065,684	43.3	12,286.8	31.8
BEECH 55	2,166	2,069	2.6	95.5	2.5	6,014,004	8.3	2,906.5	7.9
BEECH 56	60	49	6.3	81.8	5.1	125,827	9.5	2,563.1	7.1
BEECH 58	1,515	1,350	5.5	89.1	4.9	3,480,398	12.0	2,577.9	10.6
BEECH 60	396	363	7.9	91.6	7.3	630,793	13.7	1,739.0	11.1
BEECH 65	118	107	11.3	90.8	10.3	463,399	15.6	4,324.2	10.8
BEECH 76	275	233	9.6	84.9	8.2	440,077	12.4	1,885.4	7.8

6.2 1990 GENERAL AVIATION TOTAL AND AVERAGE AIRFRAME HOURS PER ACTIVE AIRCRAFT  
BY SDR MANUFACTURER/MODEL GROUP

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SDR MANUFACTURER/ MODEL GROUP	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL AIRFRAME HOURS	PERCENT STANDARD ERROR	ESTIMATE AVERAGE AIRFRAME HOURS	PERCENT STANDARD ERROR
BEECH 77	230	173	13.3	75.1	10.0	335,265	20.7	1,939.9	15.9
BEECH 80	156	116	10.1	74.4	7.5	546,256	18.9	4,708.7	16.0
BEECH 90	1,096	1,028	3.5	93.8	3.2	4,864,276	8.5	4,729.9	7.8
BEECH 95	447	412	7.4	92.1	6.8	1,572,309	11.5	3,818.7	8.9
BEECH 99	126	52	28.1	40.9	11.5	893,677	30.7	17,348.1	12.4
BELL 204	20	20	0.0	100.0	0.0	120,820	23.0	6,041.0	23.0
BELL 206	1,880	1,782	4.0	94.8	3.8	9,041,149	12.3	5,072.9	11.7
BELL 212	118	106	17.5	90.2	15.8	1,248,967	30.6	11,728.7	25.1
BELL 222	76	40	32.6	52.5	17.1	83,307	34.9	2,089.5	12.5
BELL 412	76	49	36.3	65.1	23.6	123,839	73.0	2,502.4	63.4
BELL 47	822	544	15.2	66.2	10.0	3,000,826	19.8	5,513.4	12.7
BLANCA11	80	55	12.5	69.3	8.7	109,108	22.5	1,969.1	18.7
BLANCA1413	249	77	27.4	31.0	8.5	136,021	28.4	1,763.8	7.4
BLANCA1419	263	191	10.8	72.5	7.9	347,712	13.6	1,823.2	8.2
BLANCA17	1,014	840	8.3	82.8	6.9	1,245,781	10.8	1,483.1	6.9
BLANCA7	2,311	1,769	4.3	76.6	3.3	3,459,975	7.3	1,960.4	5.9
BLANCA8	458	422	7.2	92.2	6.6	454,061	12.7	1,074.7	10.5
BNORM BN2	95	31	58.7	32.6	19.1	350,646	60.4	11,320.9	14.0
BOEING727	29	25	17.6	85.7	15.1	549,212	31.4	22,094.8	26.0
BOEING75	1,912	1,007	8.7	52.6	4.6	3,780,272	11.6	3,755.4	7.6
BOLFWMS105	184	147	17.1	79.8	13.7	424,713	28.4	2,892.6	22.6

6.2 1990 GENERAL AVIATION TOTAL AND AVERAGE AIRFRAME HOURS PER ACTIVE AIRCRAFT  
BY SDR MANUFACTURER/MODEL GROUP

SDR MANUFACTURER/ MODEL GROUP	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL AIRFRAME HOURS	PERCENT STANDARD ERROR	ESTIMATE AVERAGE AIRFRAME HOURS	PERCENT STANDARD ERROR
BOLKMS117	113	68	34.0	60.5	20.5	85,977	45.4	1,258.3	30.2
BRAERODH125	129	129	0.0	100.0	0.0	192,106	16.5	1,489.2	16.5
BRASOVIS28	45	36	16.1	79.4	12.8	20,263	25.0	567.0	19.1
BRWSTFLEET2	28	16	23.6	58.3	13.8	46,756	24.7	2,862.6	7.2
BRWSTFLEET7	21	11	19.4	53.1	10.3	36,552	22.7	3,276.4	11.8
BUKER 131	30	16	24.7	52.0	12.9	23,258	41.1	1,490.9	32.8
CAMRONMODELO	44	41	6.5	94.1	6.1	6,094	29.1	147.2	28.4
CAMRONMODELO	237	140	15.6	58.9	9.2	24,978	19.7	178.9	12.1
CASA C212	40	40	0.0	100.0	0.0	179,149	22.5	4,478.7	22.5
CESSNA120	848	643	10.6	75.8	8.0	1,948,298	12.5	3,029.5	6.7
CESSNA140	2,342	1,785	6.1	76.2	4.7	6,003,185	9.2	3,363.2	6.8
CESSNA150	18,327	16,406	1.8	89.5	1.6	64,422,852	4.8	3,926.8	4.4
CESSNA170	2,474	1,980	5.7	80.0	4.5	5,777,697	7.0	2,918.4	4.1
CESSNA172	24,363	22,342	1.4	91.7	1.3	69,702,416	4.0	3,119.7	3.8
CESSNA175	1,274	1,039	6.7	81.6	5.4	2,539,570	8.9	2,444.0	5.9
CESSNA177	2,770	2,445	3.8	88.3	3.4	5,377,889	6.1	2,199.7	4.8
CESSNA180	2,767	2,458	4.4	88.8	3.9	7,266,422	9.0	2,956.2	7.9
CESSNA182	13,636	12,360	1.8	90.6	1.6	30,935,522	5.9	2,502.9	5.6
CESSNA185	1,574	1,464	3.6	93.0	3.3	3,104,604	10.2	2,120.1	9.6
CESSNA188	1,579	1,319	6.9	83.5	5.8	3,955,846	9.0	2,999.3	5.8
CESSNA190	83	46	25.0	55.8	13.9	119,501	26.5	2,581.1	8.9

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CESSNA195	501	286	25.9	57.1	14.8	1,006,712	27.4	3,521.7	8.9
CESSNA205	238	195	12.1	82.0	9.9	596,888	14.4	3,057.0	7.8
CESSNA206	2,636	2,462	3.7	93.4	3.4	7,415,121	10.6	3,011.4	10.0
CESSNA207	318	241	21.4	75.9	16.3	1,200,877	24.8	4,973.6	12.5
CESSNA208	124	116	3.5	93.2	3.3	222,407	9.7	1,925.0	9.1
CESSNA210	5,771	5,116	3.2	88.7	2.9	10,916,193	5.5	2,133.7	4.5
CESSNA303	149	137	3.8	92.2	3.5	201,252	7.1	1,464.2	6.0
CESSNA305	278	229	7.1	82.5	5.9	1,191,477	19.9	5,195.8	18.6
CESSNA310	3,004	2,564	4.9	85.4	4.2	8,923,225	7.8	3,480.2	6.1
CESSNA320	312	163	30.6	52.1	16.0	567,056	37.3	3,485.4	21.2
CESSNA335	39	39	0.0	100.0	0.0	80,025	11.2	2,051.9	11.2
CESSNA336	70	21	39.9	30.4	12.1	48,917	40.8	2,296.1	8.6
CESSNA337	1,113	857	9.2	77.0	7.1	2,173,394	13.4	2,535.8	9.7
CESSNA340	885	822	5.1	92.9	4.8	1,617,639	8.1	1,968.5	6.2
CESSNA401	218	205	5.3	94.0	4.9	980,866	9.1	4,787.3	7.4
CESSNA402	604	456	12.5	75.5	9.4	4,081,021	19.0	8,949.1	14.3
CESSNA404	130	130	0.0	100.0	0.0	1,012,746	25.6	7,790.4	25.6
CESSNA411	130	39	69.9	30.0	21.0	139,360	71.0	3,567.7	12.4
CESSNA414	753	753	0.0	100.0	0.0	2,222,985	6.7	2,952.2	6.7
CESSNA421	1,163	1,046	5.8	89.9	5.3	3,127,272	9.8	2,990.0	7.9
CESSNA425	176	173	2.7	98.6	2.7	346,527	10.7	1,997.6	10.3

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CESSNA441	216	208	4.6	96.4	4.4	591,624	11.3	2,841.4	10.3
CESSNA500	693	689	1.5	99.4	1.5	3,034,391	13.1	4,404.7	13.0
CESSNA501	244	236	5.2	96.6	5.0	830,435	13.5	3,522.8	12.5
CESSNA650	149	135	7.4	90.6	6.7	343,392	13.5	2,544.3	11.3
CESSNA750	64	16	30.0	24.3	7.3	35,729	32.2	2,295.5	11.9
CESSNAUC94	31	7	41.8	23.9	10.0	14,432	41.8	1,950.0	0.5
CHILD S1	56	47	11.0	83.3	9.1	37,007	22.3	793.0	19.5
CHILD S2	155	140	9.4	90.4	8.5	102,685	26.2	733.0	24.4
CHRIS HUSKY	80	78	2.7	98.1	2.6	12,168	21.9	155.1	21.8
CNDIAIRCL600	139	139	0.0	100.0	0.0	385,986	16.9	2,776.9	16.9
CNTRAR101	34	31	9.7	92.0	9.0	14,182	22.9	453.4	20.7
COMWTH185	104	39	23.5	38.0	8.9	88,969	24.7	2,254.1	7.9
CONAEFLA4	446	297	20.1	66.7	13.4	364,156	23.5	1,224.6	12.2
CURTISJR	23	4	69.9	15.4	10.7	3,397	69.9	960.0	0.0
CURTISROBIN	29	0	0.0	0.0	0.0	0	0.0	0.0	0.0
CURTISTRVAIR	180	38	25.6	21.0	5.4	267,529	30.8	7,073.4	17.2
CVAC 240	31	3	164.6	8.3	13.7	27,810	164.6	10,765.0	0.0
CVAC 440	22	4	127.3	16.7	21.2	47,307	127.3	12,902.0	0.0
CVAC BT13	115	52	12.8	45.4	5.8	139,299	15.6	2,665.9	9.0
CVAC STC580	58	33	27.7	56.5	15.7	911,011	30.0	27,778.3	11.5
DART G	23	7	54.0	31.3	16.9	13,886	56.5	1,932.0	16.8

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DHAV DHC1	102	62	15.4	60.3	9.3	350,426	17.5	5,694.7	8.3
DHAV DHC2	234	145	21.7	62.1	13.5	1,384,483	27.0	9,533.2	16.1
DHAV DHC3	40	0	0.0	0.0	0.0	0	0.0	0.0	0.0
DHAV DHC4	31	31	0.0	100.0	0.0	231,384	0.0	7,464.0	0.0
DHAV DHC6	88	72	15.7	82.4	12.9	1,462,664	27.5	20,182.9	22.6
DHAVDCDH82	78	53	12.5	67.7	8.4	207,354	16.6	3,924.3	10.9
DORNERDO228	29	29	0.0	100.0	0.0	269,758	0.0	9,302.0	0.0
DOUG A26	29	18	32.3	62.5	20.2	98,495	35.8	5,434.2	15.5
DOUG DC3	367	221	31.8	60.3	19.2	4,480,980	36.7	20,246.2	18.4
DOUG DC4	59	24	26.9	41.3	11.1	560,940	27.4	23,018.1	5.4
EAGLE DW	69	51	16.7	73.6	12.3	95,242	25.1	1,875.8	18.7
EAGLEBAX7	21	13	37.8	62.5	23.6	3,119	39.3	237.6	10.7
EAGLEBC7	73	24	60.3	33.3	20.1	7,517	63.6	308.9	20.3
EIRVON20	112	108	5.0	96.4	4.8	73,617	14.0	681.6	13.1
EMB 110	63	22	97.1	34.6	33.6	370,181	98.9	16,974.8	19.1
EMB 120	46	42	15.5	92.0	14.3	267,097	31.7	6,311.4	27.6
ENSTRMF28	408	316	6.1	77.5	4.7	500,442	16.4	1,576.7	15.0
FLEET 16B	23	19	14.1	83.3	11.8	28,413	19.3	1,482.4	13.2
FRCHLD24	276	130	13.7	47.1	6.4	270,677	18.7	2,083.1	12.7
FRCHLDC119	26	0	.0	0.0	0.0	0	0.0	0.0	0.0
FRCHLDF27	21	18	18.6	83.3	15.5	498,777	26.9	28,501.5	19.4

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FRCHLDM62	224	139	14.5	62.1	9.0	233,317	19.7	1,678.2	13.3
GALAXYGX7	50	50	0.0	100.0	0.0	5,093	12.8	101.9	12.8
GENBALAX6	57	22	40.9	38.3	15.7	7,003	42.1	320.8	9.9
GLASER300	20	14	19.2	71.4	13.7	5,361	29.4	375.3	22.3
GLASER400	34	34	0.0	100.0	0.0	11,877	13.1	349.3	13.1
GLASFL201	36	10	79.7	28.6	22.8	8,735	80.5	849.3	11.4
GLASFLH301	112	73	11.4	65.1	7.4	90,021	15.3	1,234.2	10.1
GROB 103CAT	60	60	0.0	100.0	0.0	105,626	25.1	1,760.4	25.1
GROB 109	64	57	7.7	88.9	6.9	37,847	15.0	665.3	12.8
GROB ASTIR	55	49	6.7	88.4	5.9	34,039	12.6	700.3	10.7
GRTLKS2T1	185	129	10.5	69.6	7.3	105,777	24.6	821.0	22.2
GRUMANS16	59	18	34.3	31.1	10.7	70,896	34.3	4,388.9	12.2
GRUMAVAA1	556	462	7.9	83.1	6.5	704,524	12.1	1,525.0	9.2
GRUMAVAA5	1,026	895	6.1	87.3	5.3	1,589,997	8.6	1,775.8	6.1
GRUMAVG1159	33	33	0.0	100.0	0.0	198,683	7.2	6,020.7	7.2
GRUMAVG164	1,126	974	6.6	86.5	5.7	4,160,088	10.4	4,273.1	8.0
GRUMAVG21	51	38	17.6	74.4	13.1	363,820	21.9	9,593.6	13.1
GRUMAVTEM	33	17	27.7	50.8	14.1	53,745	29.4	3,206.4	9.9
GULSTMI12	632	592	5.1	93.7	4.8	748,145	9.5	1,262.8	8.0
GULSTM500	297	268	4.8	90.3	4.3	1,542,321	10.3	5,749.5	9.1
GULSTM520	47	31	38.6	66.7	25.8	210,403	43.5	6,715.0	20.0



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GULSTM560	108	101	11.0	93.7	10.3	591,775	21.4	5,850.9	18.4
GULSTM680	294	150	36.3	51.1	18.6	983,757	38.2	6,542.7	12.1
GULSTM680TP	90	21	85.9	23.3	20.1	112,128	86.4	5,339.4	8.7
GULSTM690TC	22	22	0.0	100.0	0.0	45,992	13.5	2,090.5	13.5
GULSTM690TP	369	362	2.7	98.2	2.6	1,203,402	10.7	3,321.2	10.4
GULSTMAA1	572	506	5.6	88.5	5.0	865,427	9.8	1,709.6	8.0
GULSTMAA5	633	607	3.9	95.8	3.7	996,376	9.6	1,642.7	8.8
GULSTMGL159	274	249	7.8	91.0	7.1	1,524,816	22.0	6,115.7	20.6
GULSTMGL159	81	71	10.5	87.5	9.2	860,218	13.1	12,137.1	7.8
GULSTMGA4	92	62	14.3	67.2	9.6	586,546	16.6	9,485.6	8.4
GULSTMG73	28	16	30.5	58.9	17.9	184,072	31.8	11,165.9	8.9
GULSTMGA7	47	44	6.6	93.1	6.2	119,640	12.5	2,735.5	10.7
H23/HTE	34	9	32.1	26.0	8.4	79,540	32.6	8,990.0	5.3
H34/55	27	1	243.7	4.5	11.1	5,799	243.7	4,725.0	0.0
HELIO H295	95	69	12.9	72.9	9.4	205,686	26.0	2,968.5	22.6
HELIO H391	23	14	29.1	60.0	17.5	31,740	29.1	2,300.0	0.0
HILLERFH1100	62	21	58.2	34.2	19.9	42,755	58.8	2,013.6	8.5
HILLERUH12	563	418	12.7	74.2	9.4	2,253,810	23.3	5,389.5	19.2
HSPAVNHA200	29	19	24.7	66.7	16.4	13,279	25.4	686.8	6.2
HUGHES269	637	450	17.5	70.6	12.4	2,690,201	26.9	5,984.1	20.5
HUGHES369	572	446	16.3	78.0	12.7	1,896,786	24.7	4,252.3	18.6

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HWKSLYDH104	31	8	132.4	25.0	33.1	36,456	132.4	4,704.0	0.0
HWKSLYDH125	165	163	2.9	98.6	2.9	779,150	9.9	4,790.1	9.5
HYNES B2	122	55	26.0	44.7	11.6	86,320	26.8	1,581.8	6.5
INTRCP200	33	27	9.2	81.0	7.5	52,524	14.1	1,966.1	10.7
ISRAEL1121	97	90	6.3	93.0	5.9	502,628	8.5	5,571.3	5.6
ISRAEL1123	21	21	0.0	100.0	0.0	72,357	6.3	3,445.6	6.3
ISRAEL1124	211	201	5.0	95.5	4.8	662,629	10.3	3,288.8	9.0
JEMSTFDGA15	83	37	21.7	44.5	9.7	60,492	27.1	1,636.1	16.3
LAIKEN10	37	3	115.8	8.3	9.7	278	115.8	90.0	0.0
LEAR 23	50	50	0.0	100.0	0.0	296,183	4.7	5,923.7	4.7
LEAR 24	165	150	7.9	91.0	7.1	1,101,070	16.7	7,333.1	14.8
LEAR 25	238	160	25.7	67.2	17.3	854,314	30.4	5,341.6	16.2
LEAR 35	414	359	9.7	86.8	8.4	2,012,002	15.9	5,600.2	12.6
LEAR 55	104	104	0.0	100.0	0.0	260,059	14.7	2,500.6	14.7
LET 113	159	146	5.4	91.8	5.0	244,881	11.0	1,677.7	9.6
LKHEED1329	75	75	0.0	100.0	0.0	396,766	10.4	5,290.2	10.4
LKHEED18	56	43	36.5	76.5	27.9	513,240	36.5	11,985.0	0.0
LKHEEDP2V	33	4	214.0	11.1	23.8	0	0.0	0.0	0.0
LKHEEDPV1	35	5	119.3	15.4	18.4	10,890	119.3	2,022.5	2.5
LKHEEDT33	47	16	24.9	33.1	8.3	70,286	26.3	4,511.3	8.3
LUSCOM8	2,132	914	14.3	42.9	6.1	1,920,350	16.3	2,101.6	8.0

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MACDOUG369	69	67	4.1	96.9	4.0	114,712	18.6	1,716.1	18.1
MARTIN404	22	3	136.4	12.5	17.0	165	136.4	60.0	0.0
MAULE M4	258	218	12.3	84.5	10.4	332,516	16.0	1,525.1	10.2
MAULE M5	437	407	3.8	93.2	3.6	361,456	10.5	887.9	9.8
MAULE M6	65	59	3.9	91.4	3.6	43,897	8.9	738.7	8.0
MCLISHFUNKB	143	62	16.2	43.2	7.0	96,083	19.1	1,555.7	10.0
MEYERSOTW	46	15	25.8	33.4	8.6	43,437	28.0	2,827.0	11.0
MILITARY204	207	150	13.9	72.5	10.1	1,024,836	16.7	6,831.8	9.3
MILITARY47	379	165	24.2	43.5	10.5	1,371,524	29.5	8,312.7	16.9
MNCUP90	55	15	42.2	26.5	11.2	34,117	48.9	2,338.1	24.6
MNMITEM18	135	72	20.1	53.5	10.8	112,053	25.4	1,552.7	15.5
MODFD47	54	37	16.3	67.6	11.0	149,293	24.3	4,090.2	17.9
MOONEYM20	6,519	5,938	2.6	91.1	2.4	13,545,651	8.4	2,281.1	8.0
MERCHTIS205	45	27	14.8	60.7	9.0	34,450	17.3	1,261.6	9.1
MTSBSIMU2	305	280	10.7	91.8	9.9	995,187	23.7	3,553.3	21.1
MTSBSIMU300	75	75	0.0	100.0	0.0	159,172	6.6	2,122.3	6.6
MULTECD16	38	12	40.0	31.6	12.6	40,800	46.9	3,400.0	24.4
NAMER B25	50	30	18.3	60.5	11.1	176,686	21.4	5,838.3	11.0
NAMER F51	146	88	17.5	60.2	10.5	132,780	22.8	1,511.7	14.6
NAMER NA260	202	125	17.7	62.0	11.0	837,338	26.6	6,687.1	19.9
NAMER T6	564	411	11.9	72.8	8.6	2,282,734	16.7	5,557.8	11.7

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NATBAL752	34	34	0.0	100.0	0.0	7,671	32.3	225.6	32.3
NAVAL N3N	119	41	23.4	34.1	8.0	192,459	32.4	4,748.3	22.4
NAVIONNAVION	584	421	9.3	72.1	6.7	1,427,357	10.4	3,389.7	4.7
NORD 3202	25	16	27.0	65.2	17.6	20,571	27.9	1,261.7	7.0
NORD SV4	43	23	16.5	54.6	9.0	51,927	21.2	2,212.6	13.3
NORWST65	54	23	22.7	41.9	9.5	70,915	27.5	3,135.7	15.5
ORLHELH19	72	8	205.5	10.9	22.3	106,825	210.4	13,649.8	45.2
ORLHELH58	32	0	0.0	0.0	0.0	0	0.0	0.0	0.0
PARTENP68	36	36	0.0	100.0	0.0	103,225	16.8	2,867.4	16.8
PICARDAX6	136	27	42.0	19.9	8.4	8,663	44.9	319.3	15.8
PILATSB4	28	26	5.7	94.4	5.4	26,245	29.0	992.5	28.5
PIPER 600	365	356	3.6	97.5	3.6	1,453,023	58.6	4,084.9	58.5
PIPER J2	56	22	28.6	40.0	11.4	57,604	37.6	2,571.6	24.4
PIPER J3	4,288	2,333	6.3	54.4	3.4	7,656,159	8.1	3,282.1	5.2
PIPER J4	231	73	20.8	31.5	6.6	153,562	36.0	2,109.1	29.3
PIPER J5	318	151	10.0	47.6	4.8	509,279	13.8	3,364.9	9.5
PIPER PA12	1,353	807	8.1	59.6	4.8	2,563,895	15.3	3,178.2	13.0
PIPER PA14	104	63	16.1	60.2	9.7	211,324	18.8	3,375.2	9.6
PIPER PA15	180	85	13.7	47.5	6.5	155,890	14.7	1,823.6	5.4
PIPER PA16	357	171	16.3	47.9	7.8	378,023	17.4	2,209.6	6.1
PIPER PA17	103	50	21.2	48.8	10.3	94,115	23.9	1,872.0	11.1

6.2 1990 GENERAL AVIATION TOTAL AND AVERAGE AIRFRAME HOURS PER ACTIVE AIRCRAFT  
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SDR MANUFACTURER/ MODEL GROUP	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL AIRFRAME HOURS	PERCENT STANDARD ERROR	ESTIMATE AVERAGE AIRFRAME HOURS	PERCENT STANDARD ERROR
PIPER PA18	3,624	2,780	5.7	76.7	4.4	7,773,417	10.6	2,795.8	8.9
PIPER PA20	446	279	10.4	62.6	6.5	650,743	12.3	2,332.0	6.6
PIPER PA22	4,699	3,049	6.4	64.9	4.1	7,788,500	7.1	2,550.3	3.5
PIPER PA23	3,255	2,934	4.2	90.1	3.8	10,774,693	7.2	3,672.4	5.9
PIPER PA24	3,150	2,902	3.0	92.1	2.8	9,879,022	4.8	3,404.7	3.7
PIPER PA25	1,076	758	12.2	70.4	8.6	2,892,936	15.5	3,818.6	9.6
PIPER PA28	21,814	20,331	1.2	93.2	1.1	59,861,876	4.2	2,940.3	4.0
PIPER PA30	1,236	1,138	4.7	92.1	4.3	4,058,480	9.1	3,565.7	7.9
PIPER PA31	1,744	1,690	2.9	96.9	2.8	7,658,599	12.3	4,601.7	12.3
PIPER PA31T	501	467	5.5	93.3	5.1	1,421,475	9.6	3,042.6	7.9
PIPER PA32	4,216	3,734	3.3	88.6	2.9	8,482,541	6.2	2,271.5	5.3
PIPER PA34	1,804	1,697	4.0	94.1	3.8	4,593,688	8.8	2,706.8	7.8
PIPER PA36	306	277	7.7	90.7	7.0	709,814	12.0	2,558.1	9.2
PIPER PA38	1,171	1,057	5.2	90.3	4.7	2,870,517	12.1	2,715.0	10.9
PIPER PA42	93	83	7.4	89.7	6.6	208,381	11.2	2,496.7	8.5
PIPER PA44	292	284	3.2	97.3	3.1	820,603	11.5	2,887.1	11.1
PIPER PA46	282	281	1.7	99.5	1.7	325,704	9.9	1,160.8	9.7
PROPTJ200	67	52	21.7	77.1	16.7	99,324	24.7	1,921.7	11.8
RAVEN RX6	179	37	37.5	20.5	7.7	8,809	39.1	239.7	10.9
RAVEN S50	80	14	51.2	17.2	8.8	2,814	52.9	204.8	13.4
RAVEN S55	747	388	16.6	52.0	8.6	146,196	33.8	376.6	29.5

6.2 1990 GENERAL AVIATION TOTAL AND AVERAGE AIRFRAME HOURS PER ACTIVE AIRCRAFT  
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SDR MANUFACTURER/ MODEL GROUP	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL AIRFRAME HOURS	PERCENT STANDARD ERROR	ESTIMATE AVERAGE AIRFRAME HOURS	PERCENT STANDARD ERROR
RAVEN S57	100	89	3.9	88.7	3.4	8,471	10.8	95.5	10.1
RAVEN S60	228	202	7.9	88.7	7.0	47,278	16.1	233.8	14.0
RAVEN S66	50	31	32.4	62.5	20.2	8,558	37.2	273.9	18.3
RKWELL500	32	32	0.0	100.0	0.0	142,835	14.4	4,463.6	14.4
RKWELL700	22	22	0.0	100.0	0.0	40,896	10.9	1,858.9	10.9
RKWELLNA265	281	262	6.2	93.1	5.8	1,990,717	11.9	7,609.2	10.2
ROBSINR22	494	494	0.0	100.0	0.0	662,306	18.4	1,340.7	18.4
ROLSCHLS	121	107	6.2	88.6	5.5	66,966	9.7	624.8	7.5
RYAN ST3	167	125	10.3	74.7	7.7	278,411	14.6	2,231.9	10.3
RYAN STA	30	11	49.6	35.0	17.3	11,314	51.3	1,077.5	13.1
SAAB SF340	25	25	0.0	100.0	0.0	84,050	0.0	3,362.0	0.0
SCHEMPDISCUS	45	45	0.0	100.0	0.0	20,116	11.3	447.0	11.3
SCHLERASK21	31	31	0.0	100.0	0.0	43,866	14.4	1,415.0	14.4
SCHLERASW15	34	27	11.5	80.0	9.2	37,850	18.3	1,391.6	14.3
SCHLERASW19	53	45	9.3	84.3	7.8	30,779	13.6	688.8	10.0
SCHLERASW20	88	79	12.7	89.5	11.3	109,671	34.1	1,392.9	31.7
SCHLERK8	24	17	14.5	70.6	10.2	23,802	18.5	1,405.0	11.5
SCHLERKA6	67	31	14.2	47.0	6.7	37,300	18.1	1,184.5	11.3
SCHWZH269	71	49	19.2	69.0	13.3	61,663	36.1	1,257.8	30.5
SCWZERG164	208	156	16.4	75.0	12.3	775,917	20.9	4,973.8	12.9
SCWZERSG1	733	542	5.8	74.0	4.3	567,412	10.3	1,046.2	8.6

6.2 1990 GENERAL AVIATION TOTAL AND AVERAGE AIRFRAME HOURS PER ACTIVE AIRCRAFT  
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SDR MANUFACTURER/ MODEL GROUP	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL AIRFRAME HOURS	PERCENT STANDARD ERROR	ESTIMATE AVERAGE AIRFRAME HOURS	PERCENT STANDARD ERROR
SCWZERSG2	560	336	12.0	60.1	7.2	986,962	23.5	2,939.5	20.2
SEMO MODEL T	28	14	45.5	50.0	22.8	1,087	70.3	77.7	53.5
SKRSKYS55	32	3	152.8	10.4	15.9	46,667	152.8	14,000.0	0.0
SKRSKYS58	68	40	35.4	58.8	20.8	228,544	39.2	5,719.5	16.8
SKRSKYS58T	37	20	30.1	52.9	16.0	176,692	33.4	9,020.3	14.3
SKRSKYS61	23	18	12.8	80.2	10.3	291,850	17.9	15,815.4	12.6
SKRSKYS76	167	163	5.7	97.8	5.5	744,938	24.9	4,562.1	24.2
SLINDS100	300	189	13.2	63.0	8.3	598,466	49.7	3,166.6	47.9
SMITH 600	346	289	11.3	83.6	9.4	707,817	14.4	2,447.9	9.0
SNAIS350	56	38	24.6	67.6	16.6	73,344	26.5	1,936.1	9.9
SNIAS 350	201	163	15.6	81.0	12.7	733,896	21.8	4,508.7	15.2
SNIAS SA341	29	17	39.5	59.7	23.6	44,614	41.4	2,575.5	12.1
SOCATAMS894	37	33	6.4	88.0	5.6	28,094	9.1	862.8	6.5
SOCATARALLYE	18	17	6.0	92.3	5.6	12,387	10.9	745.5	9.1
SOCATATB10	60	41	21.9	68.2	15.0	20,748	33.9	506.9	25.8
SOCATATB20	147	117	14.1	79.7	11.2	54,310	29.0	463.6	25.4
SPHRTHCIRRUS	94	79	6.9	84.4	5.8	76,363	10.8	962.6	8.3
SPHRTHNIMBUS	48	41	11.7	84.4	9.8	29,035	16.5	716.9	11.7
SPHRTHVENTUS	42	37	9.3	88.5	8.2	26,406	14.8	710.7	11.6
STBROSSC7	20	20	0.0	100.0	0.0	191,607	18.7	9,580.4	18.7
STBROSSD3	66	66	0.0	100.0	0.0	910,800	0.0	13,800.0	0.0

6.2 1990 GENERAL AVIATION TOTAL AND AVERAGE AIRFRAME HOURS PER ACTIVE AIRCRAFT  
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SDR MANUFACTURER/ MODEL GROUP	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL AIRFRAME HOURS	PERCENT STANDARD ERROR	ESTIMATE AVERAGE AIRFRAME HOURS	PERCENT STANDARD ERROR
STNSON10	140	31	35.5	22.0	7.8	70,879	44.9	2,301.1	27.5
STNSONJR	20	4	53.7	21.4	11.5	12,113	53.8	2,826.3	4.1
STNSONL5	119	29	27.4	24.7	6.8	47,743	29.6	1,621.2	11.3
STNSONSR9	23	1	114.6	5.9	6.7	1,826	114.6	1,350.0	0.0
STNSONV77	104	30	37.6	29.2	11.0	50,006	39.7	1,647.5	12.9
STOLAMRC3	207	82	10.9	39.7	4.3	125,819	14.0	1,530.1	8.7
SUPAC 1A	89	22	46.2	24.7	11.4	34,582	47.7	1,575.8	11.5
SUPAC V	26	0	0.0	0.0	0.0	0	0.0	0.0	0.0
SWRNGNSA226	181	134	14.4	74.0	10.6	954,857	40.1	4,486.9	11.0
SWRNGNSA227	76	60	12.1	78.8	9.5	518,732	25.1	8,658.0	22.0
SWRNGNSA26	80	78	7.0	96.9	6.8	368,658	20.1	4,756.9	18.9
TCRAFTKD	291	157	16.8	54.1	9.1	313,818	21.0	1,992.7	12.6
TCRAFTA	27	7	23.9	25.7	6.2	9,887	33.8	1,424.1	23.9
TCRAFTBC	1,866	898	11.9	48.1	5.7	2,036,864	14.0	2,268.6	7.5
TCRAFTBF	37	15	23.6	40.7	9.6	29,293	27.3	1,943.3	13.7
TCRAFTBL	219	44	39.7	20.0	8.0	131,366	42.2	2,993.1	14.2
TEMCO 11A	26	18	12.2	70.5	8.6	38,086	16.2	2,077.0	10.6
TH55	59	33	17.1	56.7	9.7	364,572	19.2	10,888.9	8.7
THUNDRAX7	91	81	9.7	88.7	8.6	17,387	23.8	215.3	21.7
TME SONNAVION	632	367	16.8	58.0	9.7	934,506	19.1	2,549.7	9.1
TOMCAT	40	32	15.2	79.3	12.1	78,703	20.5	2,480.9	13.8



6.2 1990 GENERAL AVIATION TOTAL AND AVERAGE AIRFRAME HOURS PER ACTIVE AIRCRAFT  
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SDR MANUFACTURER/ MODEL GROUP	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL AIRFRAME HOURS	PERCENT STANDARD ERROR	ESTIMATE AVERAGE AIRFRAME HOURS	PERCENT STANDARD ERROR
TRYTEK65	334	135	18.6	40.3	7.5	311,314	20.1	2,311.6	7.6
TRYTEK	26	2	131.2	7.7	10.1	4,252	131.2	2,126.0	0.0
UNIVACG1	673	450	11.2	66.9	7.5	825,790	14.6	1,834.4	9.3
UNIVAR108	2,012	1,135	7.0	56.4	4.0	2,572,688	8.4	2,266.9	4.7
UNIVAR415	2,403	1,268	12.0	52.8	6.3	2,106,194	13.5	1,661.4	6.3
VALENT17	22	22	0.0	100.0	0.0	5,811	15.0	264.1	15.0
VARGA 2150	131	121	8.8	92.1	8.1	152,229	21.3	1,261.3	19.4
WACO ASO	28	8	27.1	28.6	7.7	39,915	32.2	4,989.3	17.3
WACO GXE	35	8	25.6	21.8	5.6	14,490	27.7	1,895.7	10.4
WACO R	31	8	33.3	25.0	8.3	13,356	34.7	1,723.3	9.9
WACO UPF7	153	71	10.0	46.4	4.6	264,522	11.7	3,722.1	6.1
WACO YK	49	15	29.8	30.5	9.1	48,264	35.1	3,232.5	18.4
WSK M18	35	35	0.0	100.0	0.0	38,694	56.8	1,105.5	56.8
WTHRLY201	60	54	10.1	90.2	9.1	155,088	16.4	2,864.2	13.0
TOTAL	266,344	212,229	0.5	79.7	0.4	635,307,328	1.2	2,902.2	1.1

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

6.3 1990 NUMBER OF ENGINES ON ACTIVE GENERAL AVIATION AIRCRAFT AND AVERAGE HOURS PER ENGINE  
BY ENGINE SDR MANUFACTURER/MODEL GROUP

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ENGINE SDR MANUFACTURER/ MODEL GROUP	ESTIMATE OF ACTIVE ENGINES	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
OTHER	31,730	1.4	81.2	180	3.2
ALLSN 250C	1,469	2.3	98.0	385	10.8
ALLSN 501D	69	21.3	55.1	502	12.6
AMTR 430	0	0.0	0.0	0	0.0
AMTR AMTR	23,051	2.3	69.0	261	4.8
AMTRMCMCCULH	162	35.4	39.7	11	96.8
ARSCHTPE331	341	8.5	79.9	211	15.0
CONT 6285	101	13.9	87.3	250	10.7
CONT 975	0	0.0	0.0	0	0.0
CONT A40	24	73.2	19.1	12	56.1
CONT A50	10	60.4	28.7	18	14.6
CONT A65	4,789	5.3	48.8	46	6.5
CONT A75	1,036	11.6	49.8	50	13.7
CONT A80	16	85.5	19.5	81	39.8
CONT C125	235	19.3	61.3	44	28.7
CONT C145	1,744	6.2	76.8	128	44.8
CONT C85	3,758	5.7	61.3	56	8.3
CONT C90	1,980	5.3	76.2	60	10.2

6.3 1990 NUMBER OF ENGINES ON ACTIVE GENERAL AVIATION AIRCRAFT AND AVERAGE HOURS PER ENGINE  
BY ENGINE SDR MANUFACTURER/MODEL GROUP

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ENGINE SDR MANUFACTURER/ MODEL GROUP	ESTIMATE OF ACTIVE ENGINES	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
CONT E185	1,717	6.0	85.2	81	17.8
CONT E225	1,117	9.0	74.8	74	15.3
CONT O200	12,528	2.4	87.0	120	8.0
CONT O300	7,681	2.7	88.0	89	8.9
CONT O346	262	12.4	89.4	94	39.6
CONT O360	2,774	4.4	84.4	139	10.3
CONT O470	14,408	1.8	88.8	113	5.7
CONT O520	24,181	1.1	92.5	195	3.8
CONT R670	56	41.1	31.8	44	19.5
DHAVXGIPSY	82	8.6	77.9	34	18.0
FCD 6440	231	11.6	65.1	31	22.1
FRNKLN4AC150	12	59.1	44.9	60	0.0
FRNKLN4AC176	64	33.8	37.4	51	30.5
FRNKLN4AC199	71	32.7	48.6	22	11.7
FRNKLN6A4150	535	12.0	52.4	36	21.7
FRNKLN6A4165	642	7.9	58.0	48	10.8
FRNKLN6A4200	10	58.8	50.0	300	0.0
FRNKLN6A8215	83	11.1	42.6	39	12.4

6.3 1990 NUMBER OF ENGINES ON ACTIVE GENERAL AVIATION AIRCRAFT AND AVERAGE HOURS PER ENGINE  
BY ENGINE SDR MANUFACTURER/MODEL GROUP

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ENGINE SDR MANUFACTURER/ MODEL GROUP	ESTIMATE OF ACTIVE ENGINES	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
FRNKLN6AV335	142	14.4	84.8	118	21.9
FRNKLN6AV350	134	23.6	57.3	44	25.1
FRNKLN6V4	37	68.1	21.0	189	13.9
GARRTTATF3	28	0.0	100.0	491	5.6
GARRTTTF731	412	3.3	95.2	420	4.5
GARRTTTPE331	1,488	2.8	94.8	514	15.3
GE CF34	106	0.0	100.0	383	11.4
GE CF700	284	6.9	87.3	270	9.9
GE CJ610	588	8.0	78.0	333	13.6
GE CT58	47	13.9	82.5	1,171	13.1
GLADENB5	9	158.9	10.9	38	18.6
GLADENK5	22	53.0	51.8	46	16.3
GLADENR5	93	21.0	50.4	32	29.3
JACOBPR755	376	10.9	85.7	83	21.8
JACOBSP755	108	45.8	31.4	87	57.7
JACOBSP915	12	125.6	16.5	38	19.4
LIMBAH1700	22	0.0	100.0	29	12.8
LYC ALF502	74	0.0	100.0	467	6.2

6.3 1990 NUMBER OF ENGINES ON ACTIVE GENERAL AVIATION AIRCRAFT AND AVERAGE HOURS PER ENGINE  
BY ENGINE SDR MANUFACTURER/MODEL GROUP

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ENGINE SDR MANUFACTURER/ MODEL GROUP	ESTIMATE OF ACTIVE ENGINES	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
LYC LTS101	244	0.0	100.0	423	25.7
LYC O145	277	17.9	34.9	50	43.0
LYC O235	9,294	2.6	82.2	367	7.0
LYC O290	1,885	9.1	57.3	55	13.5
LYC O320	34,057	1.3	86.1	163	4.9
LYC O340	76	30.3	60.5	27	12.1
LYC O360	22,412	1.2	91.8	125	4.8
LYC O435	82	25.0	53.3	54	10.6
LYC O480	639	15.8	48.6	100	10.8
LYC O540	16,557	1.5	90.4	155	4.1
LYC O541	968	5.2	89.1	120	7.9
LYC O720	207	7.6	93.0	194	14.8
LYC R680	131	12.8	74.4	38	18.6
ONAN 18HP	0	0.0	0.0	0	0.0
PCKARDV1650	58	22.2	60.0	52	52.8
PWA JT12	312	0.0	100.0	396	11.1
PWA JT15	1,124	0.8	99.7	314	8.3
PWA JT3D	0	0.0	0.0	0	0.0

6.3 1990 NUMBER OF ENGINES ON ACTIVE GENERAL AVIATION AIRCRAFT AND AVERAGE HOURS PER ENGINE  
BY ENGINE SDR MANUFACTURER/MODEL GROUP

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ENGINE SDR MANUFACTURER/ MODEL GROUP	ESTIMATE OF ACTIVE ENGINES	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
PWA JT8	112	0.0	100.0	626	10.4
PWA PT6	4,376	1.8	92.6	362	5.2
PWA PT6T	74	26.6	74.4	370	1.2
PWA R1340	1,866	5.7	80.8	329	7.9
PWA R1830	375	14.3	75.6	259	17.4
PWA R2000	34	24.3	32.6	100	24.8
PWA R2800	130	27.1	35.2	58	17.2
PWA R985	1,988	7.4	58.7	184	11.2
ROTAX 277	0	0.0	0.0	0	0.0
RROYCEDART	247	5.1	92.7	337	12.3
RROYCEGIPSY	15	93.6	25.0	4	0.0
RROYCESPEY	474	0.0	100.0	380	10.4
RROYCEVIPER	133	0.0	100.0	172	21.1
TMECA ARRIEL	111	10.4	88.5	467	25.2
TMECA ARTST3	60	0.0	100.0	328	38.0
TMECA BASTAN	22	0.0	100.0	0	0.0
TMECA MARBOR	19	69.3	30.0	28	15.3
WARNER165	61	35.0	47.7	35	6.0

6.3 1990 NUMBER OF ENGINES ON ACTIVE GENERAL AVIATION AIRCRAFT AND AVERAGE HOURS PER ENGINE  
BY ENGINE SDR MANUFACTURER/MODEL GROUP

PAGE 6 OF 6

ENGINE SDR MANUFACTURER/ MODEL GROUP	ESTIMATE OF ACTIVE ENGINES	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
WARNER185	27	0.0	100.0	19	90.2
WARNER50	36	51.3	21.8	29	10.2
WRIGHTJ5	3	126.0	11.6	7	0.0
WRIGHTOX5	3	298.0	3.5	22	27.1
WRIGHTR1300	29	28.8	73.3	74	19.5
WRIGHTR1820	150	18.2	73.8	110	34.4
WRIGHTR2600	32	13.9	75.7	41	30.9
WRIGHTR3350	54	0.0	100.0	103	0.0
WRIGHTR760	34	49.4	34.2	61	20.2
WRIGHTR975	27	62.8	37.1	43	14.6
XENOAHG72	0	0.0	0.0	0	0.0
ALL ENGINES	240,196	0.5	81.1	173	1.5

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

ENGINE MANUFACTURER/MODEL GROUPS, FOR WHICH SEPARATE ESTIMATES ARE NOT AVAILABLE, ARE NOT LISTED IN THE TABLE BUT ARE INCLUDED IN THE "ALL ENGINES" ESTIMATES.

FOR ADDITIONAL INFORMATION, SEE APPENDIX C FOR SDR ENGINE GROUP NAMES AND FAA SDR MANUFACTURER/MODEL CODES.

## CHAPTER VII

### AVIONICS

A major purpose of the survey is to determine the avionics equipment capabilities of the general aviation fleet. This chapter presents the survey's findings with 21 tables of statistics and one figure. Figure 7.1, Avionics Equipment in the 1990 General Aviation Aircraft Fleet, graphically depicts the percentages of the general aviation fleet using the types of avionics equipment represented in Tables 7.1, 7.5, 7.9, 7.13 and 7.17.

The avionics are divided into five groups of equipment: 1) VHF communications, 2) precision approach and transponder equipment, 3) navigation equipment, 4) guidance and control equipment, and 5) electrical system and/or emergency locator transmitter equipment. Statistics on each of these groups of avionics equipment are further divided into four categories:

- 1) Aircraft Type--Tables 7.1, 7.5, 7.9, 7.13, and 7.17;
- 2) Primary Use--Tables 7.2, 7.6, 7.10, 7.14, and 7.18;
- 3) Region of Based Aircraft--Tables 7.3, 7.7, 7.11, 7.15, and 7.19; and
- 4) State of Based Aircraft--Tables 7.4, 7.8, 7.12, 7.16, and 7.20.

Tables 7.1-7.4 contain survey results for the first group of equipment, VHF communications equipment. The 1990 survey was modified in format and content to capture additional avionics data, such as data on traffic alert and collision avoidance systems (TCAS I and TCAS II), and Mode A and Mode C transponders.

The second group of avionics equipment, precision approach equipment, is presented in Tables 7.5-7.8. Precision approach equipment consists of localizers, marker beacons, glide slopes, or a microwave landing system (MLS). Although data on MLS and TCAS I and TCAS II were collected, they are not included in this report because the data collected were not sufficient to provide reasonable estimates. This set of tables includes data on transponder equipment capability within the general aviation fleet.

The third group of avionics equipment, shown in Tables 7.9-7.12, is navigation equipment. This group can be divided into three subcategories, basic navigation equipment, long range navigation equipment, and other navigation equipment. Basic navigation equipment consists of: Very high frequency Omnidirectional Radio ranges (VOR) with 100 channels, 200 channels, or two or more VOR; Automatic Direction Finder (ADF); Distance Measuring Equipment (DME); or Area Navigation (RNAV).



Long range navigation consists of: the Loran-C, which can be flown by Visual Flight Rules (VFR); Navigation Instrument Flight Rules (NAV IFR); Approach Instrument Flight Rules (APP IFR); the Omega - VLF; or some other type of long range navigation equipment (Doppler, INS, Other). The "other" navigation equipment category consists of radar altimeter, weather radar, and thunderstorm detection equipment.

Tables 7.13-7.16 constitute the fourth group of avionics equipment, Guidance and Control Equipment. This equipment includes flight directors, Electronic Flight Information Systems (EFIS), flight management computers, autopilot-axis controls (longitude, vertical, lateral and approach mode), automatic land, and flight data recorder.

Tables 7.17-7.20 constitute the fifth and last group of avionics equipment, Electrical System and/or Emergency Locator Transmitter (ELT) Equipment. Respondents were asked to indicate whether or not their aircraft was equipped with an electrical system and whether or not their aircraft had an emergency locator transmitter.

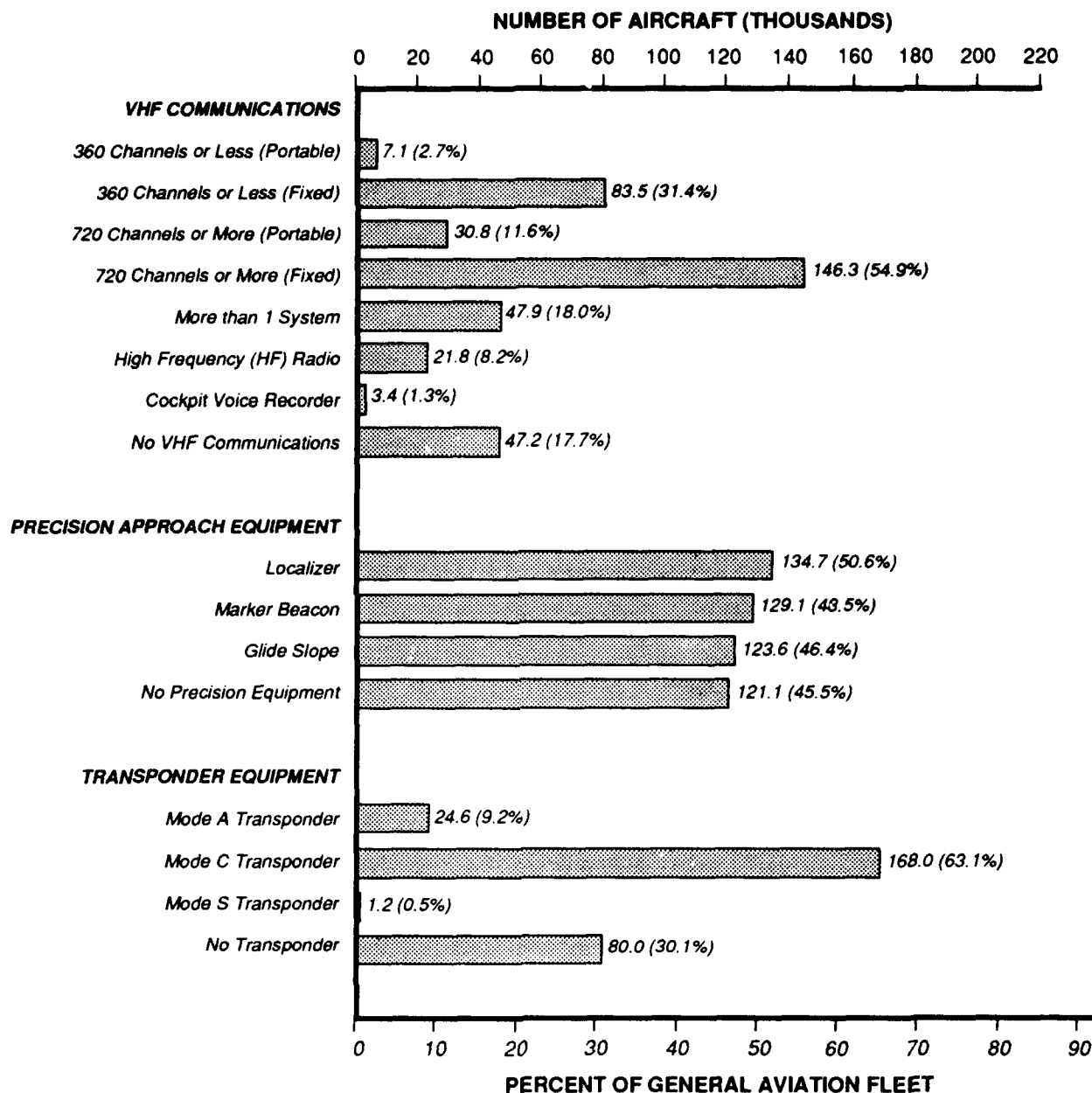
The last table in this chapter, Table 7.21, shows the estimated number of aircraft and total hours flown IFR--with and without--transponder equipment.

Some observations to be made from these tables are:

- o The avionics equipment capability of the general aviation fleet continues to become increasingly more sophisticated--nearly 55 percent of the general aviation fleet has fixed 720 channel communication equipment, and 18 percent of the 1990 general aviation fleet has more than one communications system.
- o In order to improve past survey years' response rates on questions about collision avoidance equipment, the FAA redesigned the questions pertaining to transponder information in this year's 1990 General Aviation Activity and Avionics Survey. Data on Mode A, Mode C and Mode S transponder equipment, MLS, and TCAS I and TCAS II were collected separately to avoid any possible confusion. However, data on TCAS I, TCAS II, and MLS are not included in this year's report because the data collected were not sufficient to provide reasonable estimates.
- o The majority of the general aviation fleet has some type of precision approach equipment. Estimates are evenly divided among the localizer, marker beacon, and glide slope categories.
- o Aircraft used primarily for business or commuter air carrier purposes, such as executive/corporate, business, air taxi, and commuter air carrier categories, have the highest estimates of the population with precision approach equipment. Aircraft in other use categories, such as personal, instructional, aerial application, and aerial observation, have less precision approach equipment.

- o All of the regions, with the exception of the Alaskan region, have relatively similar estimates of aircraft population size percentages with precision approach equipment. These percentages range from 49.0 percent to 62.9 percent. The Alaskan region has the lowest aircraft population with precision approach equipment, with an estimated 30.6 percent.
- o The most common type of precision approach equipment in the 1990 general aviation fleet is the localizer with 50.6 percent. The marker beacon is second with 48.5 percent of the general aviation fleet with this capability.
- o In 1990, nearly 90 percent of turboprop, turbojet, and piston multi-engine aircraft types had some kind of navigation equipment, but more than 40 percent of single engine, 1-3 seat piston aircraft and rotorcraft had no navigation equipment at all.
- o The three most popular types of navigation equipment in the 1990 general aviation fleet are: more than one VOR receiver with 140,724 equipped aircraft; the 200 channel fixed VOR with 129,259 equipped aircraft; and the ADF with 128,004 equipped aircraft.
- o The percent of the general aviation fleet with long range navigation equipment changed slightly from 1989 to 1990 with the exception of aircraft with Loran C capability. Aircraft with Loran C capability increased 37 percent over 1989's figures, from 31.2 percent in 1989 to 42.8 percent in 1990.
- o Aircraft with Omega capability declined from 1.2 percent in 1989 to 1.1 percent in 1990. The other LRNAV category rose modestly from 0.9 to 1.2 percent.
- o Nearly 83 percent of the general aviation fleet have an electrical system.
- o The estimated 1990 general aviation population with ELT capabilities was 79 percent, down slightly from 1989's estimated 82 percent.
- o In 1990, more than 90,000 aircraft were flown IFR, flying nearly 8.7 million hours as compared to 1989 when more than 89,000 aircraft were flown IFR, flying more than 8.6 million hours.

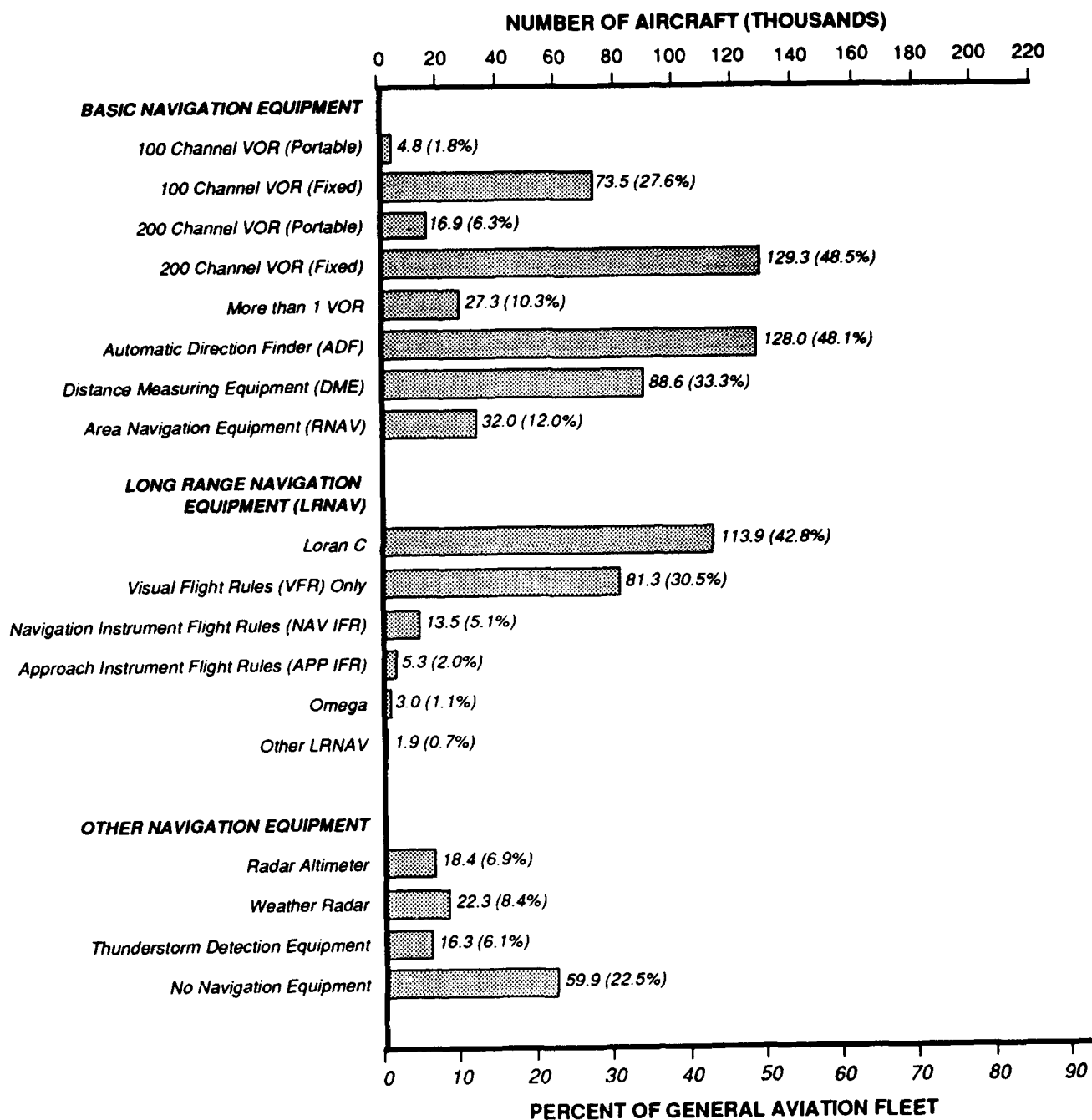
**Figure 7.1**  
**AVIONICS EQUIPMENT IN THE**  
**1990 GENERAL AVIATION AIRCRAFT FLEET**



**NOTE:** Data on microwave landing systems (MLS) and traffic alert and collision avoidance system (TCAS) I and TCAS II were collected but are not included because the data collected were not sufficient to provide reasonable estimates.

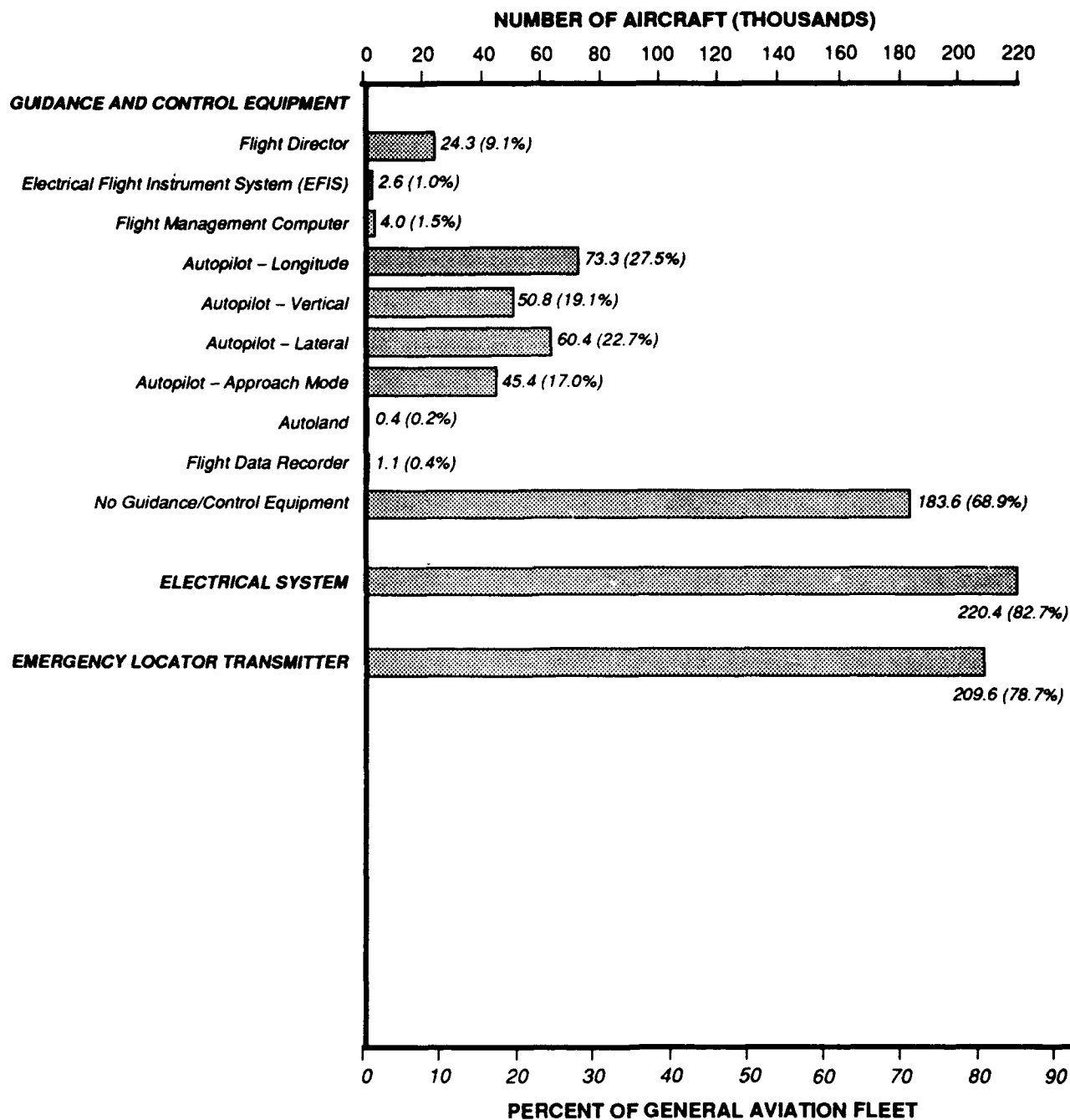
**SOURCE:** Tables 7.1 and 7.5

**Figure 7.1 (continued)**  
**AVIONICS EQUIPMENT IN THE**  
**1990 GENERAL AVIATION AIRCRAFT FLEET**



**SOURCE: Table 7.9**

**Figure 7.1 (continued)**  
**AVIONICS EQUIPMENT IN THE**  
**1990 GENERAL AVIATION AIRCRAFT FLEET**



**SOURCE:** Tables 7.13 and 7.17

7.1 1990 GENERAL AVIATION AIRCRAFT WITH VHF COMMUNICATIONS EQUIPMENT  
BY AIRCRAFT TYPE

PAGE 1 OF 3

VHF COMMUNICATIONS EQUIPMENT

AIRCRAFT TYPE	360 CH PORT	360 CH FXD	720 CH PORT	720 CH FXD	1+ SYS	HF RADIO	COCKPIT VCE REC	NO VHF
FIXED WING								
FIXED WING - PISTON								
1 ENG: 1-3 SEATS								
ESTIMATED POPULATION	2,570	25,151	11,905	27,225	8,648	4,557	151	29,239
% STANDARD ERROR	11.6	3.0	5.2	3.0	6.3	8.8	44.7	2.4
% WITH CAPABILITY	2.9	28.6	13.5	30.9	9.8	5.2	0.2	33.2
1 ENG: 4+ SEATS								
ESTIMATED POPULATION	2,830	46,753	12,936	81,592	30,727	11,116	458	7,181
% STANDARD ERROR	11.7	2.3	5.2	1.2	3.1	5.7	31.5	6.7
% WITH CAPABILITY	2.4	39.2	10.8	68.3	25.7	9.3	0.4	6.0
1 ENGINE: TOTAL								
ESTIMATED POPULATION	5,400	71,904	24,841	108,817	39,374	15,672	609	36,420
% STANDARD ERROR	8.3	1.8	3.7	1.2	2.8	4.8	26.2	2.3
% WITH CAPABILITY	2.6	34.7	12.0	52.5	19.0	7.6	0.3	17.6
2 ENG: 1-6 SEATS								
ESTIMATED POPULATION	507	5,079	1,919	14,292	4,533	1,378	62	780
% STANDARD ERROR	25.2	6.9	12.9	2.1	7.6	15.0	72.8	19.8
% WITH CAPABILITY	2.9	28.9	10.9	81.2	25.8	7.8	0.4	4.4
2 ENG: 7+ SEATS								
ESTIMATED POPULATION	283	2,142	345	6,809	1,475	784	41	856
% STANDARD ERROR	34.5	10.9	31.6	3.2	14.3	19.5	72.3	18.2
% WITH CAPABILITY	3.2	24.1	3.9	76.6	16.6	8.8	0.5	9.6
2 ENGINE: TOTAL								
ESTIMATED POPULATION	791	7,221	2,265	21,101	6,007	2,162	103	1,636
% STANDARD ERROR	20.4	5.8	12.0	1.8	6.7	11.9	52.4	13.4
% WITH CAPABILITY	3.0	27.3	8.5	79.6	22.7	8.2	0.4	6.2
PISTON: OTHER								
ESTIMATED POPULATION	2	25	2	120	18	16	0	54
% STANDARD ERROR	329.8	26.6	329.8	22.9	51.4	74.6	0.0	50.6
% WITH CAPABILITY	1.2	13.5	1.2	65.9	10.1	8.5	0.0	29.5
PISTON: TOTAL								
ESTIMATED POPULATION	6,193	79,150	27,108	130,038	45,400	17,850	712	38,110
% STANDARD ERROR	7.7	1.7	3.5	1.0	2.6	4.5	23.6	2.3
% WITH CAPABILITY	2.6	33.8	11.6	55.6	19.4	7.6	0.3	16.3

7.1 1990 GENERAL AVIATION AIRCRAFT WITH VHF COMMUNICATIONS EQUIPMENT  
BY AIRCRAFT TYPE

PAGE 2 OF 3

AIRCRAFT TYPE	VHF COMMUNICATIONS EQUIPMENT										NO VHF
	360 CH PORT	360 CH FXD	720 CH PORT	720 CH FXD	1+ SYS	HF RADIO	COCKPIT VCE REC				
FIXED WING - TURBOPROP											
2 ENG: 1-12 SEATS											
ESTIMATED POPULATION	108	847	416	4,203	1,095	302	68	187			
% STANDARD ERROR	43.3	13.5	21.0	2.0	11.6	23.0	55.0	29.4			
% WITH CAPABILITY	2.3	18.3	9.0	90.9	23.7	6.5	1.5	4.0			
2 ENG: 13+ SEATS											
ESTIMATED POPULATION	1	81	0	1,101	41	99	213	145			
% STANDARD ERROR	224.1	35.9	0.0	4.3	54.3	30.3	24.5	30.1			
% WITH CAPABILITY	0.1	6.3	0.0	85.5	3.2	7.7	16.5	11.3			
2 ENGINE: TOTAL											
ESTIMATED POPULATION	109	929	416	5,305	1,135	400	281	332			
% STANDARD ERROR	42.9	12.7	21.0	1.8	11.4	18.9	22.8	21.2			
% WITH CAPABILITY	1.9	15.7	7.0	89.7	19.2	6.8	4.8	5.6			
TURBOPROP: OTHER											
ESTIMATED POPULATION	6	23	44	231	13	29	22	200			
% STANDARD ERROR	152.0	71.3	53.3	12.0	92.1	60.0	68.0	15.5			
% WITH CAPABILITY	1.2	4.5	8.7	46.3	2.6	5.9	4.4	40.0			
TURBOPROP: TOTAL											
ESTIMATED POPULATION	115	951	459	5,536	1,149	429	303	532			
% STANDARD ERROR	41.4	12.5	19.7	1.8	11.3	18.1	21.7	14.4			
% WITH CAPABILITY	1.8	14.8	7.2	86.3	17.9	6.7	4.7	8.3			
FIXED WING - TURBOJET											
2 ENGINE TURBOJET											
ESTIMATED POPULATION	24	544	288	3,838	643	1,918	1,977	285			
% STANDARD ERROR	48.5	15.1	22.3	2.1	14.1	5.3	6.0	23.4			
% WITH CAPABILITY	0.6	12.6	6.7	89.1	14.9	44.6	45.9	6.6			
TURBOJET: OTHER											
ESTIMATED POPULATION	3	109	11	429	93	355	300	96			
% STANDARD ERROR	244.4	29.8	80.3	8.0	31.7	9.6	10.7	30.2			
% WITH CAPABILITY	0.4	18.6	1.9	73.2	15.8	60.6	51.1	16.3			
TURBOJET: TOTAL											
ESTIMATED POPULATION	26	653	299	4,267	736	2,273	2,277	381			
% STANDARD ERROR	50.0	13.5	21.7	2.0	12.9	4.7	5.4	19.1			
% WITH CAPABILITY	0.5	13.4	6.1	87.2	15.1	46.5	46.6	7.8			

7.1 1990 GENERAL AVIATION AIRCRAFT WITH VHF COMMUNICATIONS EQUIPMENT  
BY AIRCRAFT TYPE

VHF COMMUNICATIONS EQUIPMENT

AIRCRAFT TYPE	360 CH PORT	360 CH FXD	720 CH PORT	720 CH FXD	1+ SYS	HF RADIO	COCKPIT VCE REC	NO VHF
FIXED WING: TOTAL								
ESTIMATED POPULATION	6,335	80,754	27,867	139,841	47,285	20,552	3,292	39,023
% STANDARD ERROR	7.5	1.7	3.5	1.0	2.5	3.9	6.6	2.3
% WITH CAPABILITY	2.6	32.9	11.4	57.0	19.3	8.4	1.3	15.9
ROTORCRAFT								
PISTON								
ESTIMATED POPULATION	51	872	601	1,828	113	399	43	2,424
% STANDARD ERROR	78.9	15.2	19.7	9.8	51.9	26.2	65.3	7.8
% WITH CAPABILITY	0.9	15.0	10.4	31.5	1.9	6.9	0.7	41.8
TURBINE								
ESTIMATED POPULATION	15	1,019	22	3,663	362	269	74	282
% STANDARD ERROR	174.6	16.4	141.8	4.2	29.6	32.5	62.3	26.3
% WITH CAPABILITY	0.3	22.0	0.5	79.3	7.8	5.8	1.6	6.1
ROTORCRAFT: TOTAL								
ESTIMATED POPULATION	66	1,890	623	5,491	475	669	117	2,706
% STANDARD ERROR	72.8	11.3	19.7	4.3	25.7	20.4	46.1	7.5
% WITH CAPABILITY	0.6	18.1	6.0	52.7	4.6	6.4	1.1	26.0
OTHER AIRCRAFT								
ESTIMATED POPULATION	684	880	2,332	959	175	625	5	5,513
% STANDARD ERROR	16.9	11.3	8.5	11.6	33.5	18.1	266.3	4.1
% WITH CAPABILITY	6.5	8.3	22.1	9.1	1.7	5.9	0.0	52.2
TOTAL								
ESTIMATED POPULATION	7,085	83,525	30,822	146,291	47,934	21,845	3,414	47,242
% STANDARD ERROR	7.0	1.7	3.2	0.9	2.5	3.8	6.6	2.0
% WITH CAPABILITY	2.7	31.4	11.6	54.9	18.0	8.2	1.3	17.7

NOTE: COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.



7.2 1990 GENERAL AVIATION AIRCRAFT WITH VHF COMMUNICATIONS EQUIPMENT  
BY PRIMARY USE

PAGE 1 OF 2

PRIMARY USE	VHF COMMUNICATIONS EQUIPMENT										NO VHF
	360 CH PORT	360 CH FXD	720 CH PORT	720 CH FXD	1+ SYS	HF RADIO	COCKPIT VCE REC				
EXECUTIVE											
ESTIMATED POPULATION	206	1,876	725	9,802	1,821	2,361	2,122			109	
% STANDARD ERROR	42.0	12.3	16.9	3.9	11.3	6.7	5.9			54.2	
% WITH CAPABILITY	1.9	17.2	6.6	89.9	16.7	21.7	19.5			1.0	
BUSINESS											
ESTIMATED POPULATION	1,208	11,831	5,262	27,526	10,484	4,150	308			614	
% STANDARD ERROR	16.5	5.5	8.4	3.2	5.8	9.1	30.0			23.6	
% WITH CAPABILITY	3.4	33.3	14.8	77.6	29.5	11.7	0.9			1.7	
PERSONAL											
ESTIMATED POPULATION	3,718	46,498	18,459	69,642	27,511	9,533	355			11,139	
% STANDARD ERROR	9.5	2.4	4.2	1.8	3.5	6.2	30.3			4.6	
% WITH CAPABILITY	3.1	38.5	15.3	57.7	22.8	7.9	0.3			9.2	
INSTRUCTIONAL											
ESTIMATED POPULATION	120	6,679	1,020	13,472	2,545	1,681	92			955	
% STANDARD ERROR	52.7	7.8	20.1	5.3	13.0	15.9	74.0			18.1	
% WITH CAPABILITY	0.6	33.6	5.1	67.9	12.8	8.5	0.5			4.8	
AERIAL APPLICATION											
ESTIMATED POPULATION	64	421	150	1,229	91	476	30			4,576	
% STANDARD ERROR	71.6	25.0	39.8	15.4	52.4	24.8	93.6			4.8	
% WITH CAPABILITY	1.0	6.3	2.2	18.4	1.4	7.1	0.4			68.3	
AERIAL OBSERVATION											
ESTIMATED POPULATION	172	1,645	566	3,430	838	511	0			339	
% STANDARD ERROR	47.7	15.6	23.3	10.7	22.6	26.8	0.0			29.6	
% WITH CAPABILITY	3.3	31.1	10.7	64.8	15.8	9.7	0.0			6.4	
OTHER WORK USE											
ESTIMATED POPULATION	81	394	219	748	110	77	0			171	
% STANDARD ERROR	45.2	28.0	29.2	20.4	58.1	51.9	0.0			36.4	
% WITH CAPABILITY	5.3	25.9	14.4	49.0	7.2	5.1	0.0			11.2	
COMPUTER AIR CARRIER											
ESTIMATED POPULATION	0	222	7	1,139	129	0	172			0	
% STANDARD ERROR	0.0	37.3	180.2	12.1	48.0	0.0	34.3			0.0	
% WITH CAPABILITY	0.0	17.9	0.6	91.9	10.4	0.0	13.9			0.0	

7.2 1990 GENERAL AVIATION AIRCRAFT WITH VHF COMMUNICATIONS EQUIPMENT  
BY PRIMARY USE

VHF COMMUNICATIONS EQUIPMENT

PRIMARY USE	360 CH PORT	360 CH FXD	720 CH PORT	720 CH FXD	1+ SYS	HF RADIO	COCKPIT VCE REC	NO VHF
AIR TAXI								
ESTIMATED POPULATION	59	1,192	124	5,338	759	572	90	231
% STANDARD ERROR	83.9	16.3	47.8	7.1	20.2	23.5	39.2	39.7
% WITH CAPABILITY	1.0	19.3	2.0	86.3	12.3	9.3	1.5	3.7
OTHER								
ESTIMATED POPULATION	65	943	605	2,692	526	408	95	559
% STANDARD ERROR	58.0	17.1	23.2	10.6	23.9	23.6	61.7	21.9
% WITH CAPABILITY	1.5	21.7	13.9	61.8	12.1	9.4	2.2	12.8
INACTIVE								
ESTIMATED POPULATION	1,417	11,993	3,461	10,255	3,124	2,038	115	29,510
% STANDARD ERROR	16.7	4.4	10.0	5.0	10.2	11.9	22.0	2.2
% WITH CAPABILITY	2.6	22.2	6.4	19.0	5.8	3.8	0.2	54.6
TOTAL								
ESTIMATED POPULATION	7,085	83,525	30,822	146,291	47,934	21,845	3,414	47,242
% STANDARD ERROR	7.0	1.7	3.2	0.9	2.5	3.8	6.6	2.0
% WITH CAPABILITY	2.7	31.4	11.6	54.9	18.0	8.2	1.3	17.7

NOTE: COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

7.3 1990 GENERAL AVIATION AIRCRAFT WITH VHF COMMUNICATIONS EQUIPMENT  
BY REGION OF BASED AIRCRAFT

PAGE 1 OF 2

REGION	VHF COMMUNICATIONS EQUIPMENT										NO VHF
	360 CH PORT	360 CH FXD	720 CH PORT	720 CH FXD	1+ SYS	HF RADIO	COCKPIT VCE REC				
ALASKAN											
ESTIMATED POPULATION	280	3,272	1,134	3,993	1,069	702	63			1,069	
% STANDARD ERROR	37.6	9.3	17.6	9.2	18.3	20.5	64.2			16.6	
% WITH CAPABILITY	3.2	37.6	13.0	45.9	12.5	8.1	0.7			12.3	
CENTRAL											
ESTIMATED POPULATION	402	4,773	1,332	6,632	2,398	1,196	137			3,334	
% STANDARD ERROR	29.7	9.0	15.9	7.4	12.7	16.7	35.8			9.8	
% WITH CAPABILITY	2.8	33.6	9.4	46.6	16.9	8.4	1.0			23.4	
EASTERN											
ESTIMATED POPULATION	807	8,876	4,143	17,502	6,231	2,569	567			4,675	
% STANDARD ERROR	21.6	6.4	9.3	4.5	7.8	11.7	16.6			7.9	
% WITH CAPABILITY	2.7	30.0	14.0	59.2	21.1	8.7	1.9			15.8	
GREAT LAKES											
ESTIMATED POPULATION	1,331	14,567	5,895	23,413	8,788	4,191	644			8,718	
% STANDARD ERROR	17.0	5.0	7.8	3.8	6.6	9.1	18.1			5.9	
% WITH CAPABILITY	3.0	32.3	13.1	52.0	19.5	9.3	1.4			19.3	
NEW ENGLAND											
ESTIMATED POPULATION	312	3,094	1,306	5,690	1,942	820	153			1,280	
% STANDARD ERROR	33.3	11.3	16.8	8.2	14.3	21.3	41.7			15.6	
% WITH CAPABILITY	3.2	31.6	13.3	58.1	19.8	8.4	1.6			13.1	
NORTHWEST MOUNTAIN											
ESTIMATED POPULATION	439	7,586	3,091	15,059	4,531	1,406	173			4,112	
% STANDARD ERROR	28.7	7.0	11.0	4.9	9.3	16.4	35.5			8.6	
% WITH CAPABILITY	1.7	29.6	12.0	58.7	17.7	5.5	0.7			16.0	
SOUTHERN											
ESTIMATED POPULATION	1,254	13,129	4,770	25,279	7,611	3,089	510			5,506	
% STANDARD ERROR	15.7	5.3	8.9	3.7	7.1	10.4	20.3			7.3	
% WITH CAPABILITY	3.0	31.5	11.4	60.6	18.3	7.4	1.2			13.2	
SOUTHWESTERN											
ESTIMATED POPULATION	550	10,566	3,366	18,758	5,542	3,250	529			5,324	
% STANDARD ERROR	25.1	6.0	10.3	4.3	8.2	10.2	15.9			7.1	
% WITH CAPABILITY	1.7	31.8	10.1	56.5	16.7	9.8	1.6			16.0	

7.3 1990 GENERAL AVIATION AIRCRAFT WITH VHF COMMUNICATIONS EQUIPMENT  
BY REGION OF BASED AIRCRAFT

VHF COMMUNICATIONS EQUIPMENT

REGION	360 CH PORT	360 CH FXD	720 CH PORT	720 CH FXD	1+ SYS	HF RADIO	COCKPIT VCE REC	NO VHF
WESTERN-PACIFIC ESTIMATED POPULATION & STANDARD ERROR & WITH CAPABILITY	1,433 15.0 3.1	15,395 4.8 33.8	5,369 8.2 11.8	26,401 3.5 57.9	8,599 6.5 18.9	3,854 9.6 8.5	548 21.1 1.2	5,705 7.2 12.5
TOTAL ESTIMATED POPULATION & STANDARD ERROR & WITH CAPABILITY	7,085 7.0 2.7	83,525 1.7 31.4	30,822 3.2 11.6	146,291 0.9 54.9	47,934 2.5 18.0	21,845 3.8 8.2	3,414 6.6 1.3	47,242 2.0 17.7

NOTE: COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

7.4 1990 GENERAL AVIATION AIRCRAFT WITH VHF COMMUNICATIONS EQUIPMENT  
BY STATE OF BASED AIRCRAFT

PAGE 1 OF 7

VHF COMMUNICATIONS EQUIPMENT

STATE	360 CH PORT	360 CH FXD	720 CH PORT	720 CH FXD	1+ SYS	HF RADIO	COCKPIT VCE REC	NO VHF
ALABAMA								
ESTIMATED POPULATION	17	1,468	374	2,447	752	317	50	439
% STANDARD ERROR	99.2	16.6	32.3	12.7	23.1	33.8	54.7	23.5
% WITH CAPABILITY	0.4	36.7	9.3	61.2	18.8	7.9	1.2	11.0
ALASKA								
ESTIMATED POPULATION	280	3,272	1,134	3,993	1,089	702	63	1,069
% STANDARD ERROR	37.6	9.3	17.6	9.2	18.3	20.5	64.2	16.6
% WITH CAPABILITY	3.2	37.6	13.0	45.9	12.5	8.1	0.7	12.3
ARIZONA								
ESTIMATED POPULATION	279	2,248	778	3,484	1,157	503	46	1,054
% STANDARD ERROR	31.9	13.0	22.3	10.3	18.2	26.5	70.8	17.4
% WITH CAPABILITY	4.2	34.1	11.8	52.8	17.6	7.6	0.7	16.0
ARKANSAS								
ESTIMATED POPULATION	90	893	210	1,314	380	218	51	656
% STANDARD ERROR	63.3	21.7	42.2	16.6	32.9	40.8	64.0	20.5
% WITH CAPABILITY	3.2	31.6	7.4	46.5	13.4	7.7	1.8	23.2
CALIFORNIA								
ESTIMATED POPULATION	1,105	12,102	4,125	21,277	6,954	3,140	476	4,352
% STANDARD ERROR	17.5	5.5	9.3	4.0	7.3	10.7	23.0	8.3
% WITH CAPABILITY	3.1	33.6	11.5	59.1	19.3	8.7	1.3	12.1
COLORADO								
ESTIMATED POPULATION	95	1,221	732	3,188	1,047	285	44	909
% STANDARD ERROR	52.3	17.5	22.4	11.2	19.6	38.2	92.8	18.8
% WITH CAPABILITY	1.9	24.3	14.5	63.3	20.8	5.7	0.9	18.1
CONNECTICUT								
ESTIMATED POPULATION	105	739	255	1,372	461	203	55	182
% STANDARD ERROR	56.7	23.2	36.5	16.9	29.1	39.7	55.6	36.2
% WITH CAPABILITY	4.8	33.6	11.6	62.3	21.0	9.2	2.5	8.3
DELAWARE								
ESTIMATED POPULATION	9	265	132	1,104	252	227	24	95
% STANDARD ERROR	183.8	37.0	49.7	18.2	36.5	40.4	81.2	59.0
% WITH CAPABILITY	0.6	19.5	9.7	81.4	18.6	16.8	1.8	7.0

7.4 1990 GENERAL AVIATION AIRCRAFT WITH VHF COMMUNICATIONS EQUIPMENT  
BY STATE OF BASED AIRCRAFT

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VHF COMMUNICATIONS EQUIPMENT

STATE	360 CH PORT	360 CH FXD	720 CH PORT	720 CH FXD	1+ SYS	HF RADIO	COCKPIT VCE REC	NO VHF
DISTRICT OF COLUMBIA								
ESTIMATED POPULATION	1	0	8	8	4	4	4	0
% STANDARD ERROR	229.0	0.0	137.7	146.9	246.9	177.9	177.9	0.0
% WITH CAPABILITY	10.3	0.0	58.0	58.4	26.7	29.4	29.4	0.0
FLORIDA								
ESTIMATED POPULATION	666	5,194	2,065	9,819	3,124	1,248	63	1,832
% STANDARD ERROR	21.9	8.7	14.2	6.1	11.6	17.4	50.4	13.1
% WITH CAPABILITY	4.2	32.5	12.9	61.4	19.5	7.8	0.4	11.5
GEORGIA								
ESTIMATED POPULATION	91	1,429	599	3,200	929	296	106	1,044
% STANDARD ERROR	51.6	16.7	23.3	10.9	19.8	30.5	42.8	18.0
% WITH CAPABILITY	1.7	26.6	11.1	59.5	17.3	5.5	2.0	19.4
HAWAII								
ESTIMATED POPULATION	16	186	41	403	74	23	9	41
% STANDARD ERROR	117.2	44.9	75.2	30.7	69.4	111.4	132.1	84.8
% WITH CAPABILITY	2.6	30.5	6.8	66.0	12.2	3.8	1.5	6.8
IDAHO								
ESTIMATED POPULATION	2	477	255	1,305	328	212	12	306
% STANDARD ERROR	154.6	26.4	36.5	17.4	34.4	41.5	76.4	32.9
% WITH CAPABILITY	0.1	23.6	12.6	64.6	16.2	10.5	0.6	15.1
ILLINOIS								
ESTIMATED POPULATION	231	1,906	1,384	5,166	1,941	840	183	1,383
% STANDARD ERROR	41.5	14.2	16.8	8.6	14.2	20.5	34.0	14.9
% WITH CAPABILITY	2.9	23.6	17.1	63.8	24.0	10.4	2.3	17.1
INDIANA								
ESTIMATED POPULATION	89	1,554	529	2,599	1,002	457	94	797
% STANDARD ERROR	59.3	16.0	25.2	12.0	19.3	26.7	52.2	20.9
% WITH CAPABILITY	1.9	33.7	11.5	56.4	21.8	9.9	2.0	17.3
IOWA								
ESTIMATED POPULATION	104	958	339	1,750	673	185	27	706
% STANDARD ERROR	67.2	20.8	34.5	14.8	25.2	42.4	82.5	21.1
% WITH CAPABILITY	3.2	29.6	10.5	54.0	20.8	5.7	0.8	21.8

7.4 1990 GENERAL AVIATION AIRCRAFT WITH VHF COMMUNICATIONS EQUIPMENT  
BY STATE OF BASED AIRCRAFT

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VHF COMMUNICATIONS EQUIPMENT

STATE	360 CH PORT	360 CH FXD	720 CH PORT	720 CH FXD	1+ SYS	HF RADIO	COCKPIT VCE REC	NO VHF
KANSAS								
ESTIMATED POPULATION	67	1,360	388	1,673	462	359	29	928
% STANDARD ERROR	77.4	17.4	28.7	14.7	29.2	31.4	90.9	19.3
% WITH CAPABILITY	1.7	34.1	9.7	41.9	11.6	9.0	0.7	23.2
KENTUCKY								
ESTIMATED POPULATION	30	538	197	1,121	291	86	28	273
% STANDARD ERROR	66.3	27.3	44.8	19.0	36.8	53.5	68.8	31.9
% WITH CAPABILITY	1.6	28.7	10.5	59.9	15.6	4.6	1.5	14.6
LOUISIANA								
ESTIMATED POPULATION	107	727	172	2,527	458	339	93	758
% STANDARD ERROR	55.3	23.7	39.5	12.0	28.0	32.1	41.5	20.3
% WITH CAPABILITY	2.8	19.0	4.5	66.1	12.0	8.9	2.4	19.8
MAINE								
ESTIMATED POPULATION	8	478	217	979	164	219	0	295
% STANDARD ERROR	144.9	28.4	38.3	20.8	46.3	45.2	0.0	35.4
% WITH CAPABILITY	0.4	26.2	11.9	53.6	9.0	12.0	0.0	16.2
MARYLAND								
ESTIMATED POPULATION	141	1,098	648	2,098	1,060	216	38	520
% STANDARD ERROR	59.6	18.6	24.4	13.8	19.5	42.1	62.2	25.6
% WITH CAPABILITY	4.1	31.8	18.8	60.9	30.7	6.3	1.1	15.1
MASSACHUSETTS								
ESTIMATED POPULATION	125	1,039	544	2,104	879	216	46	347
% STANDARD ERROR	57.1	19.9	27.1	13.7	21.5	38.9	91.3	29.5
% WITH CAPABILITY	3.8	31.3	16.4	63.4	26.5	6.5	1.4	10.4
MICHIGAN								
ESTIMATED POPULATION	370	3,196	1,415	4,558	1,801	510	98	1,165
% STANDARD ERROR	33.8	11.0	16.2	9.3	15.0	23.8	38.5	16.2
% WITH CAPABILITY	4.2	36.1	16.0	51.4	20.3	5.8	1.1	13.1
MINNESOTA								
ESTIMATED POPULATION	195	2,088	550	2,704	870	888	42	1,486
% STANDARD ERROR	38.8	13.3	27.1	11.8	21.7	20.5	55.5	14.9
% WITH CAPABILITY	3.1	33.7	8.9	43.7	14.1	14.3	0.7	24.0

7.4 1990 GENERAL AVIATION AIRCRAFT WITH VHF COMMUNICATIONS EQUIPMENT  
BY STATE OF BASED AIRCRAFT

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VHF COMMUNICATIONS EQUIPMENT

STATE	360 CH PORT	360 CH FXD	720 CH PORT	720 CH FXD	1+ SYS	HF RADIO	COCKPIT VCE REC	NO VHF
MISSISSIPPI								
ESTIMATED POPULATION	52	567	165	1,121	231	88	52	326
% STANDARD ERROR	80.8	26.7	49.2	19.0	42.8	55.9	93.5	27.2
% WITH CAPABILITY	2.6	28.2	8.2	55.8	11.5	4.4	2.6	16.2
MISSOURI								
ESTIMATED POPULATION	188	1,852	393	2,332	1,000	471	64	1,107
% STANDARD ERROR	39.6	14.6	27.5	12.7	19.3	27.0	50.1	17.9
% WITH CAPABILITY	3.9	38.0	8.1	47.8	20.5	9.7	1.3	22.7
MONTANA								
ESTIMATED POPULATION	61	791	172	1,128	201	114	4	424
% STANDARD ERROR	88.4	22.7	48.3	18.3	44.5	57.2	268.6	26.5
% WITH CAPABILITY	2.6	33.4	7.3	47.7	8.5	4.8	0.2	17.9
NEBRASKA								
ESTIMATED POPULATION	44	604	211	877	262	180	17	593
% STANDARD ERROR	77.9	24.3	40.1	20.0	36.8	39.2	96.9	22.5
% WITH CAPABILITY	2.1	28.5	10.0	41.5	12.4	8.5	0.8	28.0
NEVADA								
ESTIMATED POPULATION	33	859	424	1,238	414	188	17	257
% STANDARD ERROR	93.2	20.7	31.6	16.6	29.2	39.5	85.2	33.0
% WITH CAPABILITY	1.3	35.5	17.5	51.2	17.1	7.8	0.7	10.6
NEW HAMPSHIRE								
ESTIMATED POPULATION	42	497	155	695	218	34	27	312
% STANDARD ERROR	86.2	28.2	50.4	21.9	43.9	72.1	57.0	32.2
% WITH CAPABILITY	2.9	34.6	10.8	48.4	15.2	2.3	1.9	21.8
NEW JERSEY								
ESTIMATED POPULATION	138	1,305	626	2,750	1,004	315	107	579
% STANDARD ERROR	49.9	17.3	23.7	11.7	19.2	33.8	34.7	22.0
% WITH CAPABILITY	3.2	30.1	14.5	63.5	23.2	7.3	2.5	13.4
NEW MEXICO								
ESTIMATED POPULATION	37	794	450	1,327	552	245	9	538
% STANDARD ERROR	68.2	22.4	26.7	16.9	27.1	39.0	171.6	21.8
% WITH CAPABILITY	1.4	30.4	17.2	50.8	21.1	9.4	0.3	20.6



7.4 1990 GENERAL AVIATION AIRCRAFT WITH VHF COMMUNICATIONS EQUIPMENT  
BY STATE OF BASED AIRCRAFT

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STATE	VHF COMMUNICATIONS EQUIPMENT									
	360 CH PORT	360 CH FXD	720 CH PORT	720 CH FXD	1+ SYS	HF RADIO	COCKPIT VCE REC	NO VHF		
NEW YORK										
ESTIMATED POPULATION	348	2,166	1,419	4,490	1,824	690	203	1,420		
% STANDARD ERROR	33.7	13.2	16.5	9.2	14.9	22.5	26.0	15.0		
% WITH CAPABILITY	4.4	27.3	17.9	56.7	23.0	8.7	2.6	17.9		
NORTH CAROLINA										
ESTIMATED POPULATION	271	1,655	540	3,613	1,207	422	61	669		
% STANDARD ERROR	37.1	15.2	25.3	10.5	18.0	25.9	56.4	20.5		
% WITH CAPABILITY	5.0	30.7	10.0	67.1	22.4	7.8	1.1	12.4		
NORTH DAKOTA										
ESTIMATED POPULATION	17	603	80	620	151	289	0	648		
% STANDARD ERROR	104.2	25.8	63.0	25.9	51.0	37.9	0.0	22.2		
% WITH CAPABILITY	0.9	33.2	4.4	34.1	8.3	15.9	0.0	35.7		
OHIO										
ESTIMATED POPULATION	172	3,151	1,241	4,794	2,003	796	148	1,597		
% STANDARD ERROR	43.5	11.3	16.2	8.8	13.8	20.8	32.0	14.6		
% WITH CAPABILITY	1.9	35.1	13.8	53.5	22.3	8.9	1.7	17.8		
OKLAHOMA										
ESTIMATED POPULATION	181	1,525	463	2,447	671	551	24	553		
% STANDARD ERROR	48.0	16.4	26.7	12.6	25.0	25.3	79.6	24.1		
% WITH CAPABILITY	4.0	33.9	10.3	54.4	14.9	12.2	0.5	12.3		
OREGON										
ESTIMATED POPULATION	36	1,598	715	3,600	843	359	41	680		
% STANDARD ERROR	66.6	15.2	23.3	10.4	21.3	30.9	49.7	21.0		
% WITH CAPABILITY	0.6	27.6	12.4	62.2	14.6	6.2	0.7	11.7		
PENNSYLVANIA										
ESTIMATED POPULATION	122	2,433	695	4,209	1,211	707	47	1,330		
% STANDARD ERROR	47.8	12.7	21.1	9.4	17.6	22.6	48.5	14.8		
% WITH CAPABILITY	1.6	32.0	9.2	55.4	16.0	9.3	0.6	17.5		
RHODE ISLAND										
ESTIMATED POPULATION	10	146	74	233	103	45	24	27		
% STANDARD ERROR	181.7	52.1	73.0	40.9	62.5	99.5	141.6	105.9		
% WITH CAPABILITY	2.5	38.1	19.4	60.7	26.8	11.8	6.2	7.0		

7.4 1990 GENERAL AVIATION AIRCRAFT WITH VHF COMMUNICATIONS EQUIPMENT  
BY STATE OF BASED AIRCRAFT

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VHF COMMUNICATIONS EQUIPMENT

STATE	360 CH PORT	360 CH FXD	720 CH PORT	720 CH FXD	1+ SYS	HF RADIO	COCKPIT VCE REC	NO VHF
<b>SOUTH CAROLINA</b>								
ESTIMATED POPULATION	64	737	276	1,271	366	172	6	379
% STANDARD ERROR	56.9	22.6	36.5	17.2	31.4	44.9	146.6	29.9
% WITH CAPABILITY	2.7	31.2	11.7	53.8	15.5	7.3	0.3	16.1
<b>SOUTH DAKOTA</b>								
ESTIMATED POPULATION	34	247	86	609	168	58	1	508
% STANDARD ERROR	116.1	36.8	55.8	26.3	50.5	72.6	323.4	24.5
% WITH CAPABILITY	2.5	18.3	6.4	45.1	12.4	4.3	0.1	37.6
<b>TENNESSEE</b>								
ESTIMATED POPULATION	33	1,355	538	2,320	663	423	143	507
% STANDARD ERROR	71.2	17.5	26.6	12.4	24.2	28.0	38.9	26.1
% WITH CAPABILITY	0.8	33.0	13.1	56.6	16.2	10.3	3.5	12.4
<b>TEXAS</b>								
ESTIMATED POPULATION	135	6,628	2,071	11,142	3,481	1,898	353	2,820
% STANDARD ERROR	47.3	7.6	13.5	5.6	10.3	13.3	18.2	10.2
% WITH CAPABILITY	0.7	34.1	10.7	57.4	17.9	9.8	1.8	14.5
<b>UTAH</b>								
ESTIMATED POPULATION	27	549	261	1,010	394	84	62	195
% STANDARD ERROR	113.4	27.2	42.3	19.8	33.4	69.4	58.7	43.3
% WITH CAPABILITY	1.7	33.4	15.9	61.5	24.0	5.1	3.8	11.9
<b>VERMONT</b>								
ESTIMATED POPULATION	22	194	61	307	117	104	2	117
% STANDARD ERROR	90.3	43.1	78.0	35.5	60.5	65.9	356.3	53.3
% WITH CAPABILITY	3.5	30.6	9.7	48.3	18.4	16.3	0.2	18.3
<b>VIRGINIA</b>								
ESTIMATED POPULATION	38	1,128	411	2,178	629	301	138	590
% STANDARD ERROR	82.5	18.2	29.6	13.4	24.6	32.2	44.9	21.8
% WITH CAPABILITY	1.0	30.9	11.2	59.6	17.2	8.2	3.8	16.1
<b>WASHINGTON</b>								
ESTIMATED POPULATION	216	2,665	915	4,281	1,615	318	6	1,455
% STANDARD ERROR	43.7	12.1	20.1	9.5	15.8	35.5	114.3	14.4
% WITH CAPABILITY	2.7	33.8	11.6	54.3	20.5	4.0	0.1	18.4

7.4 1990 GENERAL AVIATION AIRCRAFT WITH VHF COMMUNICATIONS EQUIPMENT  
BY STATE OF BASED AIRCRAFT

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STATE	VHF COMMUNICATIONS EQUIPMENT							
	360 CH PORT	360 CH FXD	720 CH PORT	720 CH FXD	1+ SYS	HF RADIO	COCKPIT VCE REC	NO VHF
WEST VIRGINIA								
ESTIMATED POPULATION	10	482	204	666	247	109	6	141
% STANDARD ERROR	154.6	28.8	47.2	24.5	41.5	61.7	152.6	51.1
% WITH CAPABILITY	0.8	38.4	16.2	53.0	19.7	8.7	0.5	11.2
WISCONSIN								
ESTIMATED POPULATION	223	1,823	609	2,362	852	353	78	1,134
% STANDARD ERROR	46.3	15.1	25.4	12.8	21.6	34.6	78.6	16.6
% WITH CAPABILITY	4.3	35.2	11.8	45.6	16.4	6.8	1.5	21.9
WYOMING								
ESTIMATED POPULATION	3	286	41	547	103	33	2	143
% STANDARD ERROR	395.4	34.0	89.0	26.6	59.5	86.5	409.4	47.4
% WITH CAPABILITY	0.3	31.1	4.5	59.5	11.2	3.5	0.2	15.6
PUERTO RICO								
ESTIMATED POPULATION	9	144	8	308	21	22	0	33
% STANDARD ERROR	182.7	48.8	146.3	36.0	116.5	114.0	0.0	93.1
% WITH CAPABILITY	1.8	29.9	1.8	64.1	4.3	4.7	0.0	6.8
OTHER U.S. TERRITORIES								
ESTIMATED POPULATION	22	41	8	60	26	13	0	4
% STANDARD ERROR	135.3	100.5	248.5	76.3	123.8	183.5	0.0	317.1
% WITH CAPABILITY	19.8	37.8	7.1	55.3	24.0	12.1	0.0	3.9

NOTE: COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

7.5 1990 GENERAL AVIATION AIRCRAFT WITH PRECISION APPROACH AND TRANSPONDER EQUIPMENT  
BY AIRCRAFT TYPE

PAGE 1 OF 3

AIRCRAFT TYPE	PRECISION APPROACH EQUIPMENT (*)			TRANSPONDER EQUIPMENT (*)				
	LOCALIZER	MARKER BEACON	GLIDE SLOPE	NO PREC EQUIP	MODE A TRANSP	MODE C TRANSP	MODE S TRANSP	NO TRANS EQUIP
FIXED WING								
FIXED WING - PISTON								
1 ENG: 1-3 SEATS								
ESTIMATED POPULATION	13,637	8,964	8,076	72,462	7,451	30,813	103	51,089
% STANDARD ERROR	4.7	6.1	6.4	0.9	7.0	2.5	63.1	1.4
% WITH CAPABILITY	15.5	10.2	9.2	82.3	8.5	35.0	0.1	58.1
1 ENG: 4+ SEATS								
ESTIMATED POPULATION	84,454	84,327	80,589	26,819	13,365	97,202	711	11,920
% STANDARD ERROR	1.1	1.0	1.1	3.0	5.1	0.8	24.4	4.6
% WITH CAPABILITY	70.7	70.6	67.5	22.5	11.2	81.4	0.6	10.0
1 ENGINE: TOTAL								
ESTIMATED POPULATION	98,091	93,291	88,665	99,281	20,816	128,014	814	63,008
% STANDARD ERROR	1.1	1.1	1.2	1.1	4.1	0.8	22.7	1.4
% WITH CAPABILITY	47.3	45.0	42.8	47.9	10.0	61.7	0.4	30.4
2 ENG: 1-6 SEATS								
ESTIMATED POPULATION	16,460	16,285	15,758	958	1,282	16,203	88	678
% STANDARD ERROR	1.1	1.2	1.4	16.5	16.5	1.3	69.5	19.5
% WITH CAPABILITY	93.5	92.5	89.5	5.4	7.3	92.1	0.5	3.9
2 ENG: 7+ SEATS								
ESTIMATED POPULATION	7,644	7,539	7,312	1,183	660	7,645	23	955
% STANDARD ERROR	2.0	2.1	2.4	12.9	21.5	2.1	107.2	15.1
% WITH CAPABILITY	86.0	84.8	82.2	13.3	7.4	86.0	0.3	10.7
2 ENGINE: TOTAL								
ESTIMATED POPULATION	24,103	23,824	23,070	2,141	1,942	23,848	111	1,633
% STANDARD ERROR	1.0	1.0	1.2	10.3	13.1	1.1	59.5	12.0
% WITH CAPABILITY	91.0	89.9	87.1	8.1	7.3	90.0	0.4	6.2
PISTON: OTHER								
ESTIMATED POPULATION	118	113	66	59	28	106	0	51
% STANDARD ERROR	23.3	24.4	36.7	46.5	34.9	26.2	0.0	52.3
% WITH CAPABILITY	65.1	62.2	36.4	32.3	15.6	58.0	0.0	28.2
PISTON: TOT'L								
ESTIMATED POPULATION	122,313	117,228	111,802	101,481	22,787	151,968	925	64,693
% STANDARD ERROR	0.9	0.9	1.0	1.1	3.9	0.7	21.2	1.4
% WITH CAPABILITY	52.3	50.1	47.8	43.4	9.7	64.9	0.4	27.6

7.5 1990 GENERAL AVIATION AIRCRAFT WITH PRECISION APPROACH AND TRANSPONDER EQUIPMENT  
BY AIRCRAFT TYPE

PAGE 2 OF 3

AIRCRAFT TYPE	PRECISION APPROACH EQUIPMENT (*)				TRANSPONDER EQUIPMENT (*)			
	LOCALIZER	MARKER BEACON	GLIDE SLOPE	NO PREC EQUIP	MODE A TRANSP	MODE C TRANSP	MODE S TRANSP	NO TRANS EQUIP
FIXED WING - TURBOPROP								
2 ENG: 1-12 SEATS								
ESTIMATED POPULATION	4,473	4,471	4,387	142	412	4,373	55	158
% STANDARD ERROR	1.2	1.2	1.5	36.0	20.6	1.6	57.2	35.4
% WITH CAPABILITY	96.8	96.7	94.9	3.1	8.9	94.6	1.2	3.4
2 ENG: 13+ SEATS								
ESTIMATED POPULATION	1,204	1,204	1,197	85	258	1,030	2	141
% STANDARD ERROR	2.2	2.2	2.2	30.7	26.1	6.5	184.3	32.9
% WITH CAPABILITY	93.4	93.4	92.9	6.6	20.0	79.9	0.2	11.0
2 ENGINE: TOTAL								
ESTIMATED POPULATION	5,678	5,675	5,584	227	670	5,404	57	299
% STANDARD ERROR	1.0	1.0	1.3	25.3	16.1	1.8	55.6	24.3
% WITH CAPABILITY	96.0	96.0	94.4	3.8	11.3	91.4	1.0	5.1
TURBOPROP: OTHER								
ESTIMATED POPULATION	191	188	188	308	19	239	7	234
% STANDARD ERROR	13.6	13.7	13.7	8.5	72.8	11.3	141.4	10.6
% WITH CAPABILITY	38.4	37.8	37.8	61.6	3.8	47.9	1.4	46.9
TURBOPROP: TOTAL								
ESTIMATED POPULATION	5,869	5,864	5,772	534	689	5,643	64	533
% STANDARD ERROR	1.1	1.1	1.3	11.8	15.8	1.8	51.9	14.4
% WITH CAPABILITY	91.5	91.5	90.0	8.3	10.7	88.0	1.0	8.3
FIXED WING - TURBOJET								
2 ENGINE TURBOJET								
ESTIMATED POPULATION	4,138	4,128	4,009	165	333	4,001	189	158
% STANDARD ERROR	1.3	1.3	1.8	31.5	21.8	1.8	22.2	32.6
% WITH CAPABILITY	96.1	95.9	93.1	3.8	7.7	92.9	4.4	3.7
TURBOJET: OTHER								
ESTIMATED POPULATION	428	416	425	156	51	475	16	93
% STANDARD ERROR	8.1	8.4	8.2	22.1	39.7	6.8	62.2	32.0
% WITH CAPABILITY	73.0	71.0	72.5	26.6	8.8	81.0	2.7	15.8
TURBOJET: TOTAL								
ESTIMATED POPULATION	4,565	4,544	4,434	321	384	4,475	205	250
% STANDARD ERROR	1.4	1.4	1.8	19.5	19.6	1.7	21.1	23.7
% WITH CAPABILITY	93.3	92.9	90.7	6.6	7.9	91.5	4.2	5.1

7.5 1990 GENERAL AVIATION AIRCRAFT WITH PRECISION APPROACH AND TRANSPONDER EQUIPMENT  
BY AIRCRAFT TYPE

PAGE 3 OF 3

AIRCRAFT TYPE	PRECISION APPROACH EQUIPMENT (*)			TRANSPONDER EQUIPMENT (*)		
	LOCALIZER	MARKER BEACON	GLIDE SLOPE	NO PREC EQUIP	MODE A TRANSP	MODE C TRANSP
FIXED WING: TOTAL						
ESTIMATED POPULATION	132,748	127,636	122,008	102,336	23,860	162,086
% STANDARD ERROR	0.9	0.8	0.9	1.0	3.8	0.7
% WITH CAPABILITY	54.1	52.0	49.7	41.7	9.7	66.1
ROTORCRAFT						
PISTON						
ESTIMATED POPULATION	29	24	35	5,704	210	1,908
% STANDARD ERROR	57.9	65.4	55.5	0.8	37.5	8.3
% WITH CAPABILITY	0.5	0.4	0.6	98.3	3.6	32.9
TURBINE						
ESTIMATED POPULATION	1,850	1,402	1,448	2,652	542	3,830
% STANDARD ERROR	10.1	12.2	12.0	7.2	24.9	3.5
% WITH CAPABILITY	40.1	30.3	31.3	57.4	11.7	82.9
ROTORCRAFT: TOTAL						
ESTIMATED POPULATION	1,879	1,425	1,483	8,356	752	5,738
% STANDARD ERROR	10.0	12.0	11.8	2.3	20.8	3.6
% WITH CAPABILITY	18.0	13.7	14.2	80.2	7.2	55.1
OTHER AIRCRAFT						
ESTIMATED POPULATION	97	48	61	10,420	25	188
% STANDARD ERROR	45.2	72.2	46.4	0.5	38.4	27.6
% WITH CAPABILITY	0.9	0.5	0.6	98.7	0.2	1.8
TOTAL						
ESTIMATED POPULATION	134,724	129,109	123,552	121,112	24,637	168,012
% STANDARD ERROR	0.9	0.8	0.9	0.9	3.7	0.7
% WITH CAPABILITY	50.6	48.5	46.4	45.5	9.2	63.1

NOTE: COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

(\*) DATA ON MICROWAVE LANDING SYSTEMS (MLS) AND TRAFFIC ALERT AND COLLISION AVOIDANCE SYSTEMS (TCAS I AND TCAS II) WERE COLLECTED BUT ARE NOT INCLUDED BECAUSE THE DATA COLLECTED WERE NOT SUFFICIENT TO PROVIDE REASONABLE ESTIMATES.

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7.6 1990 GENERAL AVIATION AIRCRAFT WITH PRECISION APPROACH AND TRANSPONDER EQUIPMENT  
BY PRIMARY USE

PAGE 2 OF 2

PRIMARY USE	PRECISION APPROACH EQUIPMENT (*)			TRANSPONDER EQUIPMENT (*)				
	LOCALIZER	MARKER BEACON	GLIDE SLOPE	NO PREC EQUIP	MODE A TRANSP	MODE C TRANSP	MODE S TRANSP	NO TRANS EQUIP
AIR TAXI								
ESTIMATED POPULATION	5,253	4,796	4,883	862	735	5,440	30	370
% STANDARD ERROR	7.2	7.5	7.4	20.5	20.5	7.0	95.9	30.8
% WITH CAPABILITY	85.0	77.6	79.0	13.9	11.9	88.0	0.5	6.0
OTHER								
ESTIMATED POPULATION	1,927	1,827	1,750	2,327	251	2,789	55	1,316
% STANDARD ERROR	11.6	11.8	11.9	11.6	36.0	10.0	48.4	15.6
% WITH CAPABILITY	44.3	42.0	40.2	53.5	5.8	64.1	1.3	30.2
INACTIVE								
ESTIMATED POPULATION	8,853	7,763	7,180	44,090	5,236	9,434	247	39,444
% STANDARD ERROR	4.8	5.0	5.3	1.0	7.7	5.2	37.3	1.4
% WITH CAPABILITY	16.4	14.4	13.3	81.6	9.7	17.5	0.5	73.0
TOTAL								
ESTIMATED POPULATION	134,724	129,109	123,552	121,112	24,637	168,012	1,236	80,045
% STANDARD ERROR	0.9	0.8	0.9	0.9	3.7	0.7	16.7	1.2
% WITH CAPABILITY	50.6	48.5	46.4	45.5	9.2	63.1	0.5	30.1

NOTE: COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

(\*) DATA ON MICROWAVE LANDING SYSTEMS (MLS) AND TRAFFIC ALERT AND COLLISION AVOIDANCE SYSTEMS (TCAS I AND TCAS II) WERE COLLECTED BUT ARE NOT INCLUDED BECAUSE THE DATA COLLECTED WERE NOT SUFFICIENT TO PROVIDE REASONABLE ESTIMATES.



7.7 1990 GENERAL AVIATION AIRCRAFT WITH PRECISION APPROACH AND TRANSPONDER EQUIPMENT  
BY REGION OF BASED AIRCRAFT

PAGE 1 OF 2

REGION	PRECISION			EQUIPMENT (*)			TRANSPONDER EQUIPMENT (*)			
	LOCALIZER	APPROACH	MARKER BEACON	GLIDE SLOPE	NO PREC EQUIP		MODE A TRANSP	MODE C TRANSP	MODE S TRANSP	NO TRANS EQUIP
ALASKAN										
ESTIMATED POPULATION	2,290	2,075		1,990	6,033		1,640	2,559	19	4,558
% STANDARD ERROR	12.5	13.5		13.7	6.7		14.4	12.0	77.5	7.5
% WITH CAPABILITY	26.3	23.9		22.9	69.4		18.9	29.4	0.2	52.4
CENTRAL										
ESTIMATED POPULATION	6,228	6,251		6,011	7,254		1,434	7,998	188	4,763
% STANDARD ERROR	7.6	7.6		7.7	6.8		16.6	6.8	46.0	8.1
% WITH CAPABILITY	43.8	44.0		42.3	51.0		10.1	56.2	1.3	33.5
EASTERN										
ESTIMATED POPULATION	17,000	15,895		15,266	11,728		2,631	20,367	103	7,323
% STANDARD ERROR	4.5	4.7		4.7	5.2		12.1	4.2	32.3	6.2
% WITH CAPABILITY	57.5	53.8		51.6	39.7		8.9	68.9	0.3	24.8
GREAT LAKES										
ESTIMATED POPULATION	22,063	21,094		20,027	21,156		4,249	26,863	253	15,116
% STANDARD ERROR	3.9	4.0		4.1	3.8		9.5	3.6	41.8	4.4
% WITH CAPABILITY	49.0	46.8		44.4	46.9		9.4	59.6	0.6	33.5
NEW ENGLAND										
ESTIMATED POPULATION	5,375	5,035		4,721	4,197		985	6,577	23	2,510
% STANDARD ERROR	8.5	8.8		9.0	9.1		19.9	7.7	101.9	11.0
% WITH CAPABILITY	54.8	51.4		48.2	42.8		10.0	67.1	0.2	25.6
NORTHWEST MOUNTAIN										
ESTIMATED POPULATION	12,102	12,080		11,283	12,256		1,902	16,289	193	7,686
% STANDARD ERROR	5.5	5.5		5.7	5.2		14.6	4.7	47.1	6.3
% WITH CAPABILITY	47.2	47.1		44.0	47.8		7.4	63.5	0.8	30.0
SOUTHERN										
ESTIMATED POPULATION	25,021	23,365		22,980	15,464		4,235	29,529	87	9,339
% STANDARD ERROR	3.6	3.7		3.8	4.6		9.8	3.3	58.5	5.6
% WITH CAPABILITY	60.0	56.0		55.1	37.1		10.2	70.8	0.2	22.4
SOUTHWESTERN										
ESTIMATED POPULATION	17,164	16,337		15,520	14,774		3,333	21,413	169	9,265
% STANDARD ERROR	4.5	4.5		4.7	4.6		10.7	4.0	44.8	5.7
% WITH CAPABILITY	51.7	49.2		46.8	44.5		10.0	64.5	0.5	27.9

7.7 1990 GENERAL AVIATION AIRCRAFT WITH PRECISION APPROACH AND TRANSPONDER EQUIPMENT  
BY REGION OF BASED AIRCRAFT

PAGE 2 OF 2

REGION	PRECISION APPROACH EQUIPMENT (*)			TRANSPONDER EQUIPMENT (*)				
	LOCALIZER	MARKER BEACON	GLIDE SLOPE	NO PREC EQUIP	MODE A TRANSP	MODE C TRANSP	MODE S TRANSP	NO TRANS EQUIP
WESTERN-PACIFIC ESTIMATED POPULATION & STANDARD ERROR & WITH CAPABILITY	24,010	23,686	22,369	19,014	3,602	32,554	131	10,952
	3.7	3.7	3.8	4.0	10.3	3.1	50.2	5.1
	52.6	51.9	49.1	41.7	7.9	71.4	0.3	24.0
TOTAL ESTIMATED POPULATION & STANDARD ERROR & WITH CAPABILITY	134,724	129,109	123,552	121,112	24,637	168,012	1,236	80,045
	0.9	0.8	0.9	0.9	3.7	0.7	16.7	1.2
	50.6	48.5	46.4	45.5	9.2	63.1	0.5	30.1

NOTE: COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

(\*) DATA ON MICROWAVE LANDING SYSTEMS (MLS) AND TRAFFIC ALERT AND COLLISION AVOIDANCE SYSTEMS (TCAS I AND TCAS II) WERE COLLECTED BUT ARE NOT INCLUDED BECAUSE THE DATA COLLECTED WERE NOT SUFFICIENT TO PROVIDE REASONABLE ESTIMATES.

7.8 1990 GENERAL AVIATION AIRCRAFT WITH PRECISION APPROACH AND TRANSPONDER EQUIPMENT  
BY STATE OF BASED AIRCRAFT

PAGE 1 OF 7

STATE	PRECISION		APPROACH	EQUIPMENT (*)		TRANSPONDER EQUIPMENT (*)			
	LOCALIZER		MARKER BEACON	GLIDE SLOPE	NO PREC EQUIP	MODE A TRANSP	MODE C TRANSP	MODE S TRANSP	NO TRANS EQUIP
ALABAMA									
ESTIMATED POPULATION	2,390		2,197	2,257	1,580	471	2,657	3	880
% STANDARD ERROR	12.7		13.3	13.1	15.3	31.8	12.1	157.7	18.4
% WITH CAPABILITY	59.8		54.9	56.4	39.5	11.8	66.4	0.1	22.0
ALASKA									
ESTIMATED POPULATION	2,290		2,075	1,990	6,033	1,640	2,559	19	4,558
% STANDARD ERROR	12.5		13.5	13.7	6.7	14.4	12.0	77.5	7.5
% WITH CAPABILITY	26.3		23.9	22.9	69.4	18.9	29.4	0.2	52.4
ARIZONA									
ESTIMATED POPULATION	3,000		2,934	2,901	3,212	509	4,531	17	1,693
% STANDARD ERROR	11.0		11.1	11.2	10.5	28.2	9.1	114.2	13.6
% WITH CAPABILITY	45.5		44.5	44.0	48.7	7.7	68.7	0.3	25.7
ARKANSAS									
ESTIMATED POPULATION	1,328		1,225	1,182	1,433	269	1,553	0	1,087
% STANDARD ERROR	16.7		17.3	17.7	15.3	37.7	15.4	0.0	17.3
% WITH CAPABILITY	46.9		43.3	41.8	50.7	9.5	54.9	0.0	38.4
CALIFORNIA									
ESTIMATED POPULATION	19,561		19,578	18,142	14,337	2,909	26,051	109	8,371
% STANDARD ERROR	4.1		4.2	4.3	4.6	11.4	3.6	56.6	5.9
% WITH CAPABILITY	54.4		54.4	50.4	39.8	8.1	72.4	0.3	23.3
COLORADO									
ESTIMATED POPULATION	2,771		2,682	2,545	2,106	208	3,538	4	1,323
% STANDARD ERROR	12.1		12.3	12.5	12.3	45.9	10.6	189.4	14.8
% WITH CAPABILITY	55.1		53.3	50.6	41.8	4.1	70.3	0.1	26.3
CONNECTICUT									
ESTIMATED POPULATION	1,358		1,240	1,187	817	198	1,518	1	581
% STANDARD ERROR	16.9		17.8	18.1	20.6	43.6	16.2	440.3	23.0
% WITH CAPABILITY	61.7		56.3	53.9	37.1	9.0	69.0	0.7	26.4
DELAWARE									
ESTIMATED POPULATION	1,006		929	869	302	72	1,233	17	89
% STANDARD ERROR	19.1		20.0	20.5	33.7	62.3	17.4	92.5	51.5
% WITH CAPABILITY	74.1		68.5	64.0	22.2	5.3	90.9	1.2	6.6

7.8 1990 GENERAL AVIATION AIRCRAFT WITH PRECISION APPROACH AND TRANSPONDER EQUIPMENT  
BY STATE OF BASED AIRCRAFT

PAGE 2 OF 7

STATE	PRECISION		APPROACH	EQUIPMENT (*)		TRANSPONDER EQUIPMENT (*)			
	LOCALIZER		MARKER BEACON	GLIDE SLOPE	NO PREC EQUIP	MODE A TRANSP	MODE C TRANSP	MODE S TRANSP	NO TRANS EQUIP
DISTRICT OF COLUMBIA	8	8	8	8	6	0	8	0	6
	146.9	146.9	146.9	146.9	122.2	0.0	146.9	0.0	122.2
	58.4	58.4	58.4	58.4	41.6	0.0	58.4	0.0	41.6
FLORIDA	10,080	9,133	9,057	9,057	5,652	1,393	12,073	33	3,059
	6.0	6.3	6.3	6.3	8.0	17.2	5.5	78.1	10.2
	63.0	57.1	56.6	56.6	35.3	8.7	75.5	0.2	19.1
GEORGIA	3,174	3,084	2,880	2,880	1,980	614	3,780	0	1,310
	11.0	11.2	11.5	11.5	13.1	25.3	10.2	0.0	15.4
	59.0	57.3	53.6	53.6	36.8	11.4	70.3	0.0	24.4
HAWAII	222	143	176	176	375	67	417	0	139
	38.6	46.0	41.6	41.6	31.8	77.3	28.8	0.0	50.9
	36.4	23.4	28.9	28.9	61.5	11.1	68.3	0.0	22.8
IDAHO	937	935	839	839	978	228	1,300	1	529
	20.3	20.2	21.0	21.0	18.6	44.7	17.3	447.9	22.8
	46.4	46.3	41.5	41.5	48.4	11.3	64.3	0.1	26.2
ILLINOIS	4,816	4,549	4,480	4,480	3,100	539	5,486	12	2,234
	8.9	9.2	9.3	9.3	10.6	26.6	8.4	118.3	12.1
	59.5	56.2	55.4	55.4	38.3	6.7	67.8	0.1	27.6
INDIANA	2,476	2,371	2,440	2,440	1,788	514	2,925	1	1,352
	12.3	12.7	12.5	12.5	14.1	26.4	11.4	561.1	16.0
	53.8	51.5	53.0	53.0	38.8	11.2	63.5	0.0	29.4
IOWA	1,587	1,557	1,338	1,338	1,546	400	1,876	11	964
	15.4	15.7	16.6	16.6	15.2	31.0	14.4	151.4	18.4
	49.0	48.1	41.3	41.3	47.7	12.3	57.9	0.3	29.8

7.8 1990 GENERAL AVIATION AIRCRAFT WITH PRECISION APPROACH AND TRANSPONDER EQUIPMENT  
BY STATE OF BASED AIRCRAFT

PAGE 3 OF 7

STATE	PRECISION APPROACH EQUIPMENT (*)				TRANSPONDER EQUIPMENT (*)			
	LOCALIZER	MARKER BEACON	GLIDE SLOPE	NO PREC EQUIP	MODE A TRANSP	MODE C TRANSP	MODE S TRANSP	NO TRANS EQUIP
KANSAS								
ESTIMATED POPULATION	1,601	1,739	1,729	2,133	457	2,016	170	1,376
% STANDARD ERROR	15.0	14.5	14.8	13.0	30.5	13.6	49.6	15.6
% WITH CAPABILITY	40.1	43.6	43.3	53.4	11.5	50.5	4.3	34.5
KENTUCKY								
ESTIMATED POPULATION	949	801	748	849	338	1,091	1	492
% STANDARD ERROR	20.5	22.0	22.7	20.4	36.3	19.2	301.0	24.4
% WITH CAPABILITY	50.7	42.8	40.0	45.4	18.0	58.3	0.1	26.3
LOUISIANA								
ESTIMATED POPULATION	2,003	1,793	1,674	1,793	197	2,742	30	874
% STANDARD ERROR	13.9	14.5	15.0	13.8	42.6	11.6	105.9	19.2
% WITH CAPABILITY	52.4	46.9	43.8	46.9	5.1	71.7	0.8	22.9
MAINE								
ESTIMATED POPULATION	788	791	666	983	289	875	10	676
% STANDARD ERROR	23.4	23.6	25.8	19.4	37.9	22.3	162.3	22.5
% WITH CAPABILITY	43.2	43.3	36.5	53.9	15.8	47.9	0.6	37.0
MARYLAND								
ESTIMATED POPULATION	2,255	2,070	2,151	1,052	367	2,636	15	611
% STANDARD ERROR	13.2	13.7	13.6	18.4	34.9	12.2	76.3	23.4
% WITH CAPABILITY	65.4	60.0	62.4	30.5	10.6	76.4	0.4	17.7
MASSACHUSETTS								
ESTIMATED POPULATION	2,088	1,947	1,884	1,144	238	2,636	5	470
% STANDARD ERROR	13.7	14.2	14.5	17.8	40.3	12.4	238.7	23.8
% WITH CAPABILITY	62.9	58.7	56.8	34.5	7.2	79.5	0.2	14.2
MICHIGAN								
ESTIMATED POPULATION	4,433	4,435	4,434	3,936	1,091	5,576	87	2,559
% STANDARD ERROR	9.3	9.4	9.4	9.3	19.6	8.3	78.1	11.0
% WITH CAPABILITY	50.0	50.0	50.0	44.4	12.3	62.9	1.0	28.9
MINNESOTA								
ESTIMATED POPULATION	2,525	2,201	2,074	3,367	244	3,466	45	2,537
% STANDARD ERROR	12.4	13.3	13.6	9.8	34.3	10.6	100.0	11.0
% WITH CAPABILITY	40.8	35.6	33.5	54.4	3.9	56.0	0.7	41.0

7.8 1990 GENERAL AVIATION AIRCRAFT WITH PRECISION APPROACH AND TRANSPONDER EQUIPMENT  
BY STATE OF BASED AIRCRAFT

PAGE 4 OF 7

STATE	PRECISION			APPROACH	EQUIPMENT (*)		TRANSPONDER EQUIPMENT (*)			
	LOCALIZER			MARKER BEACON	GLIDE SLOPE	NO PREC EQUIP	MODE A TRANSP	MODE C TRANSP	MODE S TRANSP	NO TRANS EQUIP
MISSISSIPPI ESTIMATED POPULATION & STANDARD ERROR & WITH CAPABILITY	997			882	914	933	240	1,206	0	613
	19.5			20.6	20.5	19.8	42.5	18.0	0.0	22.4
	49.6			43.9	45.4	46.4	11.9	60.0	0.0	30.5
MISSOURI ESTIMATED POPULATION & STANDARD ERROR & WITH CAPABILITY	2,196			2,172	2,195	2,400	285	3,123	4	1,560
	13.2			13.2	13.2	12.2	37.5	11.1	177.9	14.7
	45.0			44.5	45.0	49.2	5.8	64.1	0.1	32.0
MONTANA ESTIMATED POPULATION & STANDARD ERROR & WITH CAPABILITY	749			788	760	1,457	429	878	40	1,067
	22.0			21.8	22.2	16.0	30.7	20.6	99.3	18.3
	31.7			33.3	32.1	61.6	18.2	37.1	1.7	45.2
NEBRASKA ESTIMATED POPULATION & STANDARD ERROR & WITH CAPABILITY	845			783	749	1,175	292	982	3	863
	20.4			20.6	20.9	16.5	36.0	19.0	185.7	18.2
	39.9			37.0	35.4	55.5	13.8	46.4	0.1	40.8
NEVADA ESTIMATED POPULATION & STANDARD ERROR & WITH CAPABILITY	1,227			1,031	1,150	1,089	116	1,555	5	750
	17.1			18.6	17.5	17.8	58.1	15.1	233.1	21.3
	50.7			42.7	47.6	45.1	4.8	64.3	0.2	31.0
NEW HAMPSHIRE ESTIMATED POPULATION & STANDARD ERROR & WITH CAPABILITY	654			629	564	738	166	882	6	455
	23.5			24.2	25.4	20.8	48.6	19.7	147.6	26.5
	45.6			43.8	39.3	51.4	11.6	61.5	0.4	31.7
NEW JERSEY ESTIMATED POPULATION & STANDARD ERROR & WITH CAPABILITY	2,491			2,441	2,363	1,694	191	3,182	3	1,018
	12.2			12.3	12.4	14.4	44.3	10.9	205.0	17.5
	57.5			56.4	54.6	39.1	4.4	73.5	0.1	23.5
NEW MEXICO ESTIMATED POPULATION & STANDARD ERROR & WITH CAPABILITY	1,117			941	1,070	1,361	255	1,316	0	1,064
	18.2			19.6	18.8	14.9	41.1	16.9	0.0	16.0
	42.7			36.0	40.9	52.1	9.8	50.3	0.0	40.7

7.8 1990 GENERAL AVIATION AIRCRAFT WITH PRECISION APPROACH AND TRANSPONDER EQUIPMENT  
BY STATE OF BASED AIRCRAFT

PAGE 5 OF 7

STATE	PRECISION APPROACH			EQUIPMENT (*)		TRANSPONDER EQUIPMENT (*)			
	LOCALIZER	MARKER BEACON	GLIDE SLOPE	NO PREC EQUIP	MODE A TRANSP	MODE C TRANSP	MODE S TRANSP	NO TRANS EQUIP	
NEW YORK									
ESTIMATED POPULATION	4,227	3,939	3,770	3,454	1,143	4,649	29	2,298	
% STANDARD ERROR	9.5	9.8	10.0	9.9	18.2	9.2	73.4	11.5	
% WITH CAPABILITY	53.4	49.7	47.6	43.6	14.4	58.7	0.4	29.0	
NORTH CAROLINA									
ESTIMATED POPULATION	3,625	3,351	3,457	1,671	436	4,104	37	1,028	
% STANDARD ERROR	10.4	10.8	10.7	13.9	29.4	9.7	114.0	16.8	
% WITH CAPABILITY	67.3	62.2	64.2	31.0	8.1	76.2	0.7	19.1	
NORTH DAKOTA									
ESTIMATED POPULATION	538	456	468	1,260	147	557	0	1,118	
% STANDARD ERROR	27.6	29.6	29.3	16.8	54.9	26.9	0.0	17.5	
% WITH CAPABILITY	29.6	25.1	25.7	69.3	8.1	30.6	0.0	61.5	
OHIO									
ESTIMATED POPULATION	4,762	4,678	4,005	3,900	1,052	5,680	83	2,529	
% STANDARD ERROR	8.8	8.9	9.6	9.6	19.5	8.1	71.0	11.5	
% WITH CAPABILITY	53.1	52.2	44.7	43.5	11.7	63.4	0.9	28.2	
OKLAHOMA									
ESTIMATED POPULATION	2,185	2,322	2,215	1,982	385	2,954	53	1,235	
% STANDARD ERROR	13.1	12.7	13.1	13.7	29.7	11.4	92.1	17.0	
% WITH CAPABILITY	48.6	51.6	49.3	44.1	8.6	65.7	1.2	27.5	
OREGON									
ESTIMATED POPULATION	2,884	2,947	2,832	2,592	465	3,607	36	1,729	
% STANDARD ERROR	11.5	11.5	11.7	11.7	29.8	10.3	90.5	13.9	
% WITH CAPABILITY	49.8	50.9	48.9	44.8	8.0	62.3	0.6	29.9	
PENNSYLVANIA									
ESTIMATED POPULATION	4,086	3,900	3,639	3,324	408	5,261	8	2,087	
% STANDARD ERROR	9.6	9.8	10.1	9.9	30.6	8.5	67.9	11.7	
% WITH CAPABILITY	53.8	51.4	47.9	43.8	5.4	69.3	0.1	27.5	
RHODE ISLAND									
ESTIMATED POPULATION	266	248	234	106	24	298	0	65	
% STANDARD ERROR	38.7	40.2	41.2	57.3	119.2	36.6	0.0	69.4	
% WITH CAPABILITY	69.2	64.5	61.0	27.5	6.3	77.6	0.0	17.0	

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7.8 1990 GENERAL AVIATION AIRCRAFT WITH PRECISION APPROACH AND TRANSPONDER EQUIPMENT  
BY STATE OF BASED AIRCRAFT

PAGE 7 OF 7

STATE	PRECISION			APPROACH	EQUIPMENT (*)		TRANSPONDER EQUIPMENT (*)			
	LOCALIZER	MARKER BEACON	GLIDE SLOPE	NO PREC EQUIP	MODE A TRANSP	MODE C TRANSP	MODE S TRANSP	NO TRANS EQUIP		
WEST VIRGINIA										
ESTIMATED POPULATION	809	720	624	401	102	891	3	267		
% STANDARD ERROR	22.4	23.5	25.4	31.1	64.4	21.4	196.9	36.8		
% WITH CAPABILITY	64.4	57.3	49.7	32.0	8.1	71.0	0.2	21.3		
WISCONSIN										
ESTIMATED POPULATION	2,108	1,985	1,763	2,886	561	2,649	10	2,043		
% STANDARD ERROR	13.7	14.0	14.8	11.3	26.7	12.3	137.1	13.0		
% WITH CAPABILITY	40.7	38.3	34.0	55.7	10.8	51.1	0.2	39.4		
WYOMING										
ESTIMATED POPULATION	397	355	369	490	60	461	34	388		
% STANDARD ERROR	30.5	32.3	31.6	26.7	77.8	28.2	119.7	29.6		
% WITH CAPABILITY	43.3	38.6	40.2	53.4	6.5	50.2	3.7	42.2		
PUERTO RICO										
ESTIMATED POPULATION	370	356	305	108	81	349	0	51		
% STANDARD ERROR	32.5	33.1	37.2	52.3	75.8	32.0	0.0	81.6		
% WITH CAPABILITY	77.0	74.1	63.5	22.5	16.8	72.6	0.0	10.7		
OTHER U.S. TERRITORIES										
ESTIMATED POPULATION	86	84	89	17	7	93	0	9		
% STANDARD ERROR	66.0	67.0	64.3	164.7	222.0	64.3	0.0	216.3		
% WITH CAPABILITY	79.1	77.2	81.5	15.5	6.4	85.1	0.0	8.5		
TOTAL										
ESTIMATED POPULATION	134,724	129,109	123,552	121,112	24,637	168,012	1,236	80,045		
% STANDARD ERROR	0.9	0.8	0.9	0.9	3.7	0.7	16.7	1.2		
% WITH CAPABILITY	50.6	48.5	46.4	45.5	9.2	63.1	0.5	30.1		

NOTE: COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

(\*) DATA ON MICROWAVE LANDING SYSTEMS (MLS) AND TRAFFIC ALERT AND COLLISION AVOIDANCE SYSTEMS (TCAS I AND TCAS II) WERE COLLECTED BUT ARE NOT INCLUDED BECAUSE THE DATA COLLECTED WERE NOT SUFFICIENT TO PROVIDE REASONABLE ESTIMATES.

7.9 1990 GENERAL AVIATION AIRCRAFT WITH BASIC, LONG RANGE, AND OTHER NAVIGATION EQUIPMENT  
BY AIRCRAFT TYPE

PAGE 1 OF 6

BASIC NAVIGATION EQUIPMENT

AIRCRAFT TYPE	VOR 100CH PORT	VOR 100CH FXD	VOR 200CH PORT	VOR 200CH FXD	1+ VOR	ADF	DME	RNAV
FIXED WING								
FIXED WING - PISTON								
1 ENG: 1-3 SEATS								
ESTIMATED POPULATION	1,871	22,305	6,493	22,579	13,066	7,932	2,294	598
% STANDARD ERROR	13.4	3.4	7.5	3.3	4.6	6.3	12.5	23.6
% WITH CAPABILITY	2.1	25.3	7.4	25.7	14.8	9.0	2.6	0.7
1 ENG: 4+ SEATS								
ESTIMATED POPULATION	2,164	41,827	8,028	75,080	91,719	83,766	52,655	13,475
% STANDARD ERROR	13.5	2.5	6.8	1.4	0.9	1.1	1.8	4.7
% WITH CAPABILITY	1.8	35.0	6.7	62.9	76.8	70.2	44.1	11.3
1 ENGINE: TOTAL								
ESTIMATED POPULATION	4,035	64,132	14,520	97,660	104,784	91,698	54,949	14,073
% STANDARD ERROR	9.5	2.0	5.0	1.3	1.0	1.1	1.8	4.6
% WITH CAPABILITY	1.9	30.9	7.0	47.1	50.5	44.2	26.5	6.8
2 ENG: 1-6 SEATS								
ESTIMATED POPULATION	329	4,432	1,194	13,552	16,450	15,755	14,743	6,924
% STANDARD ERROR	31.1	7.6	16.6	2.4	1.0	1.5	1.9	5.1
% WITH CAPABILITY	1.9	25.2	6.8	77.0	93.5	89.5	83.8	39.3
2 ENG: 7+ SEATS								
ESTIMATED POPULATION	163	2,261	325	6,037	7,565	7,439	7,151	3,825
% STANDARD ERROR	40.7	10.7	31.2	4.0	2.1	2.2	2.3	6.3
% WITH CAPABILITY	1.8	25.4	3.7	67.9	85.1	83.7	80.4	43.0
2 ENGINE: TOTAL								
ESTIMATED POPULATION	492	6,693	1,519	19,590	24,015	23,194	21,893	10,748
% STANDARD ERROR	24.8	6.2	14.7	2.0	1.0	1.2	1.5	4.0
% WITH CAPABILITY	1.9	25.3	5.7	73.9	90.7	87.5	82.6	40.6
PISTON: OTHER								
ESTIMATED POPULATION	3	30	0	101	115	119	59	47
% STANDARD ERROR	105.8	61.5	0.0	27.9	24.3	23.1	41.6	57.1
% WITH CAPABILITY	1.4	16.3	0.0	55.7	63.2	65.6	32.2	25.8
PISTON: TOTAL								
ESTIMATED POPULATION	4,529	70,855	16,039	117,351	128,914	115,011	76,901	24,869
% STANDARD ERROR	8.9	1.9	4.8	1.1	0.8	0.9	1.4	3.1
% WITH CAPABILITY	1.9	30.3	6.9	50.1	55.1	49.1	32.9	10.6

7.9 1990 GENERAL AVIATION AIRCRAFT WITH BASIC, LONG RANGE, AND OTHER NAVIGATION EQUIPMENT  
BY AIRCRAFT TYPE

PAGE 2 OF 6

AIRCRAFT TYPE	LONG RANGE NAVIGATION EQUIPMENT							OTHER NAVIGATION EQUIPMENT			
	-----LORAN-----							RADAR ALTIM	WEATHER RADAR	THUNDER STM DET	NO NAV EQ
	LORAN C	VFR ONLY	IFR NAV	APP IFR	OMEGA	OTHER LRNAV					
FIXED WING											
FIXED WING - PISTON											
1 ENG: 1-3 SEATS											
ESTIMATED POPULATION	27,112	13,683	929	195	4	119	128	39	95	36,482	
% STANDARD ERROR	2.9	4.8	22.0	49.3	170.5	68.5	54.6	91.6	68.2	1.9	
% WITH CAPABILITY	30.8	15.5	1.1	0.2	0.0	0.1	0.1	0.0	0.1	41.5	
1 ENG: 4+ SEATS											
ESTIMATED POPULATION	59,611	50,458	6,708	2,948	156	85	2,786	1,658	9,656	6,086	
% STANDARD ERROR	1.8	2.1	7.5	11.5	49.5	67.0	11.7	14.6	5.6	7.0	
% WITH CAPABILITY	49.9	42.3	5.6	2.5	0.1	0.1	2.3	1.4	8.1	5.1	
1 ENGINE: TOTAL											
ESTIMATED POPULATION	86,724	64,141	7,637	3,144	161	204	2,914	1,697	9,751	42,568	
% STANDARD ERROR	1.5	2.0	7.1	11.2	48.4	48.7	11.4	14.4	5.6	1.9	
% WITH CAPABILITY	41.8	30.9	3.7	1.5	0.1	0.1	1.4	0.8	4.7	20.5	
2 ENG: 1-6 SEATS											
ESTIMATED POPULATION	9,114	7,362	1,952	603	8	101	2,979	6,131	2,707	585	
% STANDARD ERROR	4.3	5.2	12.5	22.1	106.9	64.4	9.3	5.2	10.4	21.1	
% WITH CAPABILITY	51.8	41.8	11.1	3.4	0.0	0.6	16.9	34.8	15.4	3.3	
2 ENG: 7+ SEATS											
ESTIMATED POPULATION	4,426	3,074	959	384	40	51	2,130	4,356	1,472	1,005	
% STANDARD ERROR	6.1	8.3	17.7	30.3	90.0	60.1	9.2	5.4	13.7	14.7	
% WITH CAPABILITY	49.8	34.6	10.8	4.3	0.4	0.6	24.0	49.0	16.6	11.3	
2 ENGINE: TOTAL											
ESTIMATED POPULATION	13,539	10,436	2,911	986	48	152	5,110	10,487	4,179	1,590	
% STANDARD ERROR	3.5	4.4	10.2	17.9	76.8	47.3	6.7	3.8	8.3	12.1	
% WITH CAPABILITY	51.1	39.4	11.0	3.7	0.2	0.6	19.3	39.6	15.8	6.0	
PISTON: OTHER											
ESTIMATED POPULATION	99	49	7	2	3	0	5	19	47	42	
% STANDARD ERROR	28.5	39.7	151.8	329.8	92.1	0.0	163.6	87.3	57.1	59.9	
% WITH CAPABILITY	54.3	27.1	3.9	1.2	1.8	0.0	2.6	10.4	25.8	23.3	
PISTON: TOTAL											
ESTIMATED POPULATION	100,362	74,627	10,556	4,132	212	357	8,029	12,203	13,977	44,200	
% STANDARD ERROR	1.4	1.8	5.9	9.6	40.6	34.5	5.9	3.8	4.6	1.9	
% WITH CAPABILITY	42.9	31.9	4.5	1.8	0.1	0.2	3.4	5.2	6.0	18.9	

7.9 1990 GENERAL AVIATION AIRCRAFT WITH BASIC, LONG RANGE, AND OTHER NAVIGATION EQUIPMENT  
BY AIRCRAFT TYPE

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BASIC NAVIGATION EQUIPMENT

AIRCRAFT TYPE	VOR 100CH PORT	VOR 100CH FXD	VOR 200CH PORT	VOR 200CH FXD	1+ VOR	ADF	DME	RNAV
FIXED WING - TURBOPROP								
2 ENG: 1-12 SEATS								
ESTIMATED POPULATION	39	741	180	3,952	4,413	4,463	4,365	3,523
% STANDARD ERROR	69.4	13.9	31.2	2.6	1.3	1.3	1.6	3.4
% WITH CAPABILITY	0.8	16.0	3.9	85.5	95.5	96.5	94.4	76.2
2 ENG: 13+ SEATS								
ESTIMATED POPULATION	0	180	21	967	1,155	1,172	1,156	444
% STANDARD ERROR	0.0	27.9	58.1	6.4	3.7	2.5	3.0	14.8
% WITH CAPABILITY	0.0	14.0	1.6	75.0	89.6	90.9	89.7	34.5
2 ENGINE: TOTAL								
ESTIMATED POPULATION	39	921	200	4,920	5,568	5,634	5,521	3,968
% STANDARD ERROR	69.4	12.4	28.6	2.4	1.3	1.1	1.4	3.5
% WITH CAPABILITY	0.7	15.6	3.4	83.2	94.2	95.3	93.4	67.1
TURBOPROP: OTHER								
ESTIMATED POPULATION	7	23	55	175	221	198	172	70
% STANDARD ERROR	130.5	65.7	42.9	14.4	12.3	13.4	14.4	29.0
% WITH CAPABILITY	1.4	4.6	11.1	35.1	44.3	39.7	34.4	14.0
TURBOPROP: TOTAL								
ESTIMATED POPULATION	46	944	256	5,095	5,789	5,833	5,693	4,038
% STANDARD ERROR	62.1	12.2	24.3	2.4	1.3	1.2	1.5	3.4
% WITH CAPABILITY	0.7	14.7	4.0	79.5	90.3	91.0	88.8	63.0
FIXED WING - TURBOJET								
2 ENGINE TURBOJET								
ESTIMATED POPULATION	4	538	70	3,630	4,114	4,110	4,128	2,162
% STANDARD ERROR	133.5	16.7	47.7	2.7	1.3	1.3	1.3	5.6
% WITH CAPABILITY	0.1	12.5	1.6	84.3	95.6	95.5	95.9	50.2
TURBOJET: OTHER								
ESTIMATED POPULATION	0	79	13	391	421	382	427	194
% STANDARD ERROR	0.0	37.3	106.0	9.4	8.3	9.1	8.1	18.2
% WITH CAPABILITY	0.0	13.4	2.3	66.8	71.8	65.3	72.8	33.2
TURBOJET: TOTAL								
ESTIMATED POPULATION	4	616	84	4,021	4,535	4,493	4,555	2,357
% STANDARD ERROR	133.5	15.3	43.5	2.6	1.4	1.4	1.4	5.3
% WITH CAPABILITY	0.1	12.6	1.7	82.2	92.7	91.9	93.1	48.2

7.9 1990 GENERAL AVIATION AIRCRAFT WITH BASIC, LONG RANGE, AND OTHER NAVIGATION EQUIPMENT  
BY AIRCRAFT TYPE

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AIRCRAFT TYPE	LONG RANGE NAVIGATION EQUIPMENT							OTHER NAVIGATION EQUIPMENT			
	LORAN C	VFR ONLY	IFR NAV	APP IFR	OMEGA	OTHER LRNAV		RADAR ALTIM	WEATHER RADAR	THUNDER STM DET	NO NAV EQ
FIXED WING - TURBOPROP											
2 ENG: 1-12 SEATS											
ESTIMATED POPULATION	3,196	1,871	1,364	467	252	86		3,961	4,310	1,070	140
% STANDARD ERROR	4.2	7.5	9.2	19.1	22.3	49.8		2.5	1.7	11.1	36.4
% WITH CAPABILITY	69.1	40.5	29.5	10.1	5.5	1.9		85.7	93.2	23.2	3.0
2 ENG: 13+ SEATS											
ESTIMATED POPULATION	389	125	194	89	85	33		666	1,130	122	85
% STANDARD ERROR	12.3	23.5	20.3	32.0	25.9	53.2		10.3	3.8	25.6	30.7
% WITH CAPABILITY	30.2	9.7	15.1	6.9	6.6	2.5		51.7	87.7	9.5	6.6
2 ENGINE: TOTAL											
ESTIMATED POPULATION	3,585	1,996	1,559	557	338	118		4,628	5,440	1,192	225
% STANDARD ERROR	4.0	7.2	8.4	16.9	17.9	39.0		2.6	1.6	10.3	25.5
% WITH CAPABILITY	60.6	33.8	26.4	9.4	5.7	2.0		78.3	92.0	20.2	3.8
TURBOPROP: OTHER											
ESTIMATED POPULATION	397	155	40	5	9	17		78	142	16	218
% STANDARD ERROR	5.4	20.4	50.5	65.6	113.1	83.2		26.2	14.9	58.1	12.9
% WITH CAPABILITY	79.5	31.0	8.0	1.0	1.8	3.5		15.7	28.4	3.2	43.7
TURBOPROP: TOTAL											
ESTIMATED POPULATION	3,982	2,151	1,599	561	347	136		4,706	5,582	1,208	443
% STANDARD ERROR	3.6	6.8	8.3	16.7	17.7	35.6		2.6	1.6	10.2	14.4
% WITH CAPABILITY	62.1	33.6	24.9	8.8	5.4	2.1		73.4	87.1	18.8	6.9
FIXED WING - TURBOJET											
2 ENGINE TURBOJET											
ESTIMATED POPULATION	1,677	598	1,009	440	2,164	992		3,880	3,843	746	160
% STANDARD ERROR	7.8	15.1	11.1	16.8	5.1	8.6		1.8	2.1	12.5	32.4
% WITH CAPABILITY	39.0	13.9	23.4	10.2	50.3	23.0		90.1	89.3	17.3	3.7
TURBOJET: OTHER											
ESTIMATED POPULATION	168	59	85	55	245	258		357	311	137	93
% STANDARD ERROR	20.9	43.0	27.1	34.3	13.7	14.7		9.8	10.0	23.8	32.0
% WITH CAPABILITY	28.6	10.1	14.4	9.4	41.9	44.1		61.0	53.1	23.4	15.8
TURBOJET: TOTAL											
ESTIMATED POPULATION	1,845	657	1,094	495	2,409	1,250		4,237	4,154	883	253
% STANDARD ERROR	7.3	14.3	10.5	15.4	4.8	7.5		1.9	2.1	11.2	23.6
% WITH CAPABILITY	37.7	13.4	22.4	10.1	49.3	25.6		86.6	84.9	18.1	5.2

7.9 1990 GENERAL AVIATION AIRCRAFT WITH BASIC, LONG RANGE, AND OTHER NAVIGATION EQUIPMENT  
BY AIRCRAFT TYPE

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BASIC NAVIGATION EQUIPMENT

AIRCRAFT TYPE	VOR 100CH PORT	VOR 100CH FXD	VOR 200CH PORT	VOR 200CH FXD	1+ VOR	ADF	DME	RNAV
<b>FIXED WING: TOTAL</b>								
ESTIMATED POPULATION	4,579	72,415	16,379	126,467	139,239	125,337	87,149	31,263
% STANDARD ERROR	8.8	1.9	4.7	1.1	0.8	0.9	1.2	2.6
% WITH CAPABILITY	1.9	29.5	6.7	51.5	56.7	51.1	35.5	12.7
<b>ROTORCRAFT</b>								
<b>PISTON</b>								
ESTIMATED POPULATION	124	342	208	253	15	125	19	24
% STANDARD ERROR	49.5	22.3	36.0	31.8	90.5	36.5	120.1	108.4
% WITH CAPABILITY	2.1	5.9	3.6	4.4	0.3	2.2	0.3	0.4
<b>TURBINE</b>								
ESTIMATED POPULATION	3	742	37	2,445	1,409	2,541	1,373	735
% STANDARD ERROR	201.9	20.9	101.0	8.2	12.1	7.4	12.1	19.2
% WITH CAPABILITY	0.1	16.1	0.8	52.9	30.5	55.0	29.7	15.9
<b>ROTORCRAFT: TOTAL</b>								
ESTIMATED POPULATION	126	1,084	246	2,698	1,425	2,666	1,392	758
% STANDARD ERROR	48.6	15.9	34.2	8.0	12.0	7.3	12.0	18.9
% WITH CAPABILITY	1.2	10.4	2.4	25.9	13.7	25.6	13.4	7.3
<b>OTHER</b>								
ESTIMATED POPULATION	107	50	240	93	61	2	63	9
% STANDARD ERROR	42.0	52.0	29.2	30.1	57.5	429.3	71.6	118.6
% WITH CAPABILITY	1.0	0.5	2.3	0.9	0.6	0.0	0.6	0.1

<b>TOTAL</b>	4,812	73,549	16,865	129,259	140,724	128,004	88,604	32,030
ESTIMATED POPULATION	8.6	1.9	4.6	1.1	0.8	0.9	1.2	2.6
% STANDARD ERROR	1.8	27.6	6.3	48.5	52.8	48.1	33.3	12.0
% WITH CAPABILITY								

7.9 1990 GENERAL AVIATION AIRCRAFT WITH BASIC, LONG RANGE, AND OTHER NAVIGATION EQUIPMENT  
BY AIRCRAFT TYPE

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AIRCRAFT TYPE	LONG RANGE NAVIGATION EQUIPMENT							OTHER NAVIGATION EQUIPMENT				EQUIPMENT	
	-----LORAN-----							RADAR ALTIM	WEATHER RADAR	THUNDER STM DET	NO NAV EQ		
	LORAN C	VFR ONLY	IFR NAV	APP	IFR	OMEGA	OTHER LRNAV						
FIXED WING: TOTAL													
ESTIMATED POPULATION	106,188	77,435	13,248	5,189	2,968	1,743		16,972	21,939	16,069	44,896		
% STANDARD ERROR	1.3	1.7	4.8	8.0	5.3	9.3		2.9	2.2	4.2	1.9		
% WITH CAPABILITY	43.3	31.6	5.4	2.1	1.2	0.7		6.9	8.9	6.5	18.3		
ROTORCRAFT													
PISTON													
ESTIMATED POPULATION	2,875	881	9	0	0	0		5	0	15	4,281		
% STANDARD ERROR	7.1	15.4	184.4	0.0	0.0	0.0		200.3	0.0	143.4	3.9		
% WITH CAPABILITY	49.6	15.2	0.2	0.0	0.0	0.0		0.1	0.0	0.3	73.8		
TURBINE													
ESTIMATED POPULATION	3,507	2,877	248	79	22	24		1,443	366	190	494		
% STANDARD ERROR	5.0	6.7	27.1	52.6	93.0	95.2		11.7	13.0	25.5	23.0		
% WITH CAPABILITY	75.9	62.3	5.4	1.7	0.5	0.5		31.2	7.9	4.1	10.7		
ROTORCRAFT: TOTAL													
ESTIMATED POPULATION	6,382	3,758	258	79	22	24		1,448	366	205	4,776		
% STANDARD ERROR	4.2	6.3	27.0	52.6	93.0	95.2		11.7	13.0	25.8	4.2		
% WITH CAPABILITY	61.2	36.1	2.5	0.8	0.2	0.2		13.9	3.5	2.0	45.8		
OTHER													
ESTIMATED POPULATION	1,292	124	0	0	0	86		10	4	1	9,913		
% STANDARD ERROR	10.7	28.0	0.0	0.0	0.0	63.5		114.9	245.1	223.0	1.1		
% WITH CAPABILITY	12.2	1.2	0.0	0.0	0.0	0.8		0.1	0.0	0.0	93.9		
TOTAL													
ESTIMATED POPULATION	113,863	81,316	13,506	5,268	2,990	1,852		18,430	22,309	16,275	59,585		
% STANDARD ERROR	1.3	1.7	4.8	7.9	5.3	9.3		2.8	2.2	4.1	1.5		
% WITH CAPABILITY	42.8	30.5	5.1	2.0	1.1	0.7		6.9	8.4	6.1	22.4		

NOTE: COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

7.10 1990 GENERAL AVIATION AIRCRAFT WITH BASIC, LONG RANGE, AND OTHER NAVIGATION EQUIPMENT  
BY PRIMARY USE

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BASIC NAVIGATION EQUIPMENT

PRIMARY USE	VOR 100CH PORT	VOR 100CH FXD	VOR 200CH PORT	VOR 200CH FXD	1+ VOR	ADF	DME	RNAV
<b>EXECUTIVE</b>								
ESTIMATED POPULATION	152	1,877	419	9,152	10,233	10,314	10,065	6,628
% STANDARD ERROR	48.8	12.1	25.3	4.2	3.9	3.9	3.9	5.1
% WITH CAPABILITY	1.4	17.2	3.8	83.9	93.9	94.6	92.3	60.8
<b>BUSINESS</b>								
ESTIMATED POPULATION	824	10,679	2,759	25,042	30,697	29,808	24,822	10,970
% STANDARD ERROR	20.0	5.8	11.6	3.4	3.0	3.0	3.3	5.1
% WITH CAPABILITY	2.3	30.1	7.8	70.6	86.5	84.0	69.9	30.9
<b>PERSONAL</b>								
ESTIMATED POPULATION	2,848	40,603	10,431	61,569	68,009	57,980	35,571	8,474
% STANDARD ERROR	11.2	2.7	5.8	2.0	1.8	2.0	2.8	6.4
% WITH CAPABILITY	2.4	33.7	8.6	51.0	56.4	48.1	29.5	7.0
<b>INSTRUCTIONAL</b>								
ESTIMATED POPULATION	174	5,797	920	12,718	10,065	9,139	4,472	896
% STANDARD ERROR	43.8	8.5	22.0	5.5	6.3	6.6	9.4	20.8
% WITH CAPABILITY	0.9	29.2	4.6	64.1	50.7	46.0	22.5	4.5
<b>AERIAL APPLICATION</b>								
ESTIMATED POPULATION	28	251	34	414	365	397	247	127
% STANDARD ERROR	57.3	35.5	116.9	25.1	30.0	27.5	30.9	49.5
% WITH CAPABILITY	0.4	3.7	0.5	6.2	5.4	5.9	3.7	1.9
<b>AERIAL OBSERVATION</b>								
ESTIMATED POPULATION	39	1,313	226	2,885	2,724	2,886	1,509	257
% STANDARD ERROR	88.9	17.6	41.4	11.9	12.3	12.0	16.0	37.1
% WITH CAPABILITY	0.7	24.8	4.3	54.5	51.5	54.5	28.5	4.9
<b>OTHER WORK USE</b>								
ESTIMATED POPULATION	3	290	55	464	296	160	83	30
% STANDARD ERROR	129.0	32.0	67.2	27.8	33.7	37.1	39.7	45.8
% WITH CAPABILITY	0.2	19.0	3.6	30.4	19.4	10.5	5.4	2.0
<b>COMMUTER AIR CARRIER</b>								
ESTIMATED POPULATION	0	308	7	891	1,094	958	768	254
% STANDARD ERROR	0.0	28.8	56.5	13.7	13.1	14.6	16.3	32.6
% WITH CAPABILITY	0.0	24.9	0.6	71.9	88.3	77.3	62.0	20.5



7.10 1990 GENERAL AVIATION AIRCRAFT WITH BASIC, LONG RANGE, AND OTHER NAVIGATION EQUIPMENT  
BY PRIMARY USE

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PRIMARY USE	LONG RANGE NAVIGATION EQUIPMENT							OTHER NAVIGATION EQUIPMENT			EQUIPMENT		
	-----LORAN-----							RADIO ALTIM	WEATHER RADAR	THUNDER STM DET			
	LORAN C	VFR ONLY	IFR NAV	APP IFR	OMEGA	OTHER LRNAV							
EXECUTIVE													
ESTIMATED POPULATION	5,966	3,824	2,418	900	2,104	967		7,372	8,108	2,377		98	
% STANDARD ERROR	5.7	7.8	8.4	13.9	6.0	8.9		3.9	3.7	9.2		57.0	
% WITH CAPABILITY	54.7	35.1	22.2	8.3	19.3	8.9		67.6	74.4	21.8		0.9	
BUSINESS													
ESTIMATED POPULATION	20,916	17,597	3,667	1,478	277	211		4,314	6,327	6,370		415	
% STANDARD ERROR	3.8	4.2	9.4	14.8	24.9	35.0		7.9	6.2	6.9		25.6	
% WITH CAPABILITY	58.9	49.6	10.3	4.2	0.8	0.6		12.2	17.8	17.9		1.2	
PERSONAL													
ESTIMATED POPULATION	51,688	43,742	4,845	1,742	221	238		2,817	2,609	5,645		16,969	
% STANDARD ERROR	2.3	2.6	8.9	15.3	36.6	39.8		10.8	10.7	7.9		3.1	
% WITH CAPABILITY	42.8	36.3	4.0	1.4	0.2	0.2		2.3	2.2	4.7		14.1	
INSTRUCTIONAL													
ESTIMATED POPULATION	4,356	3,543	592	341	0	0		272	259	478		1,321	
% STANDARD ERROR	9.6	10.8	26.7	35.0	0.0	0.0		36.1	34.0	29.1		12.6	
% WITH CAPABILITY	21.9	17.8	3.0	1.7	0.0	0.0		1.4	1.3	2.4		6.7	
AERIAL APPLICATION													
ESTIMATED POPULATION	4,023	660	89	14	0	44		129	93	76		5,669	
% STANDARD ERROR	5.6	19.2	54.2	43.9	0.0	65.6		35.4	48.9	56.4		4.0	
% WITH CAPABILITY	60.1	9.9	1.3	0.2	0.0	0.7		1.9	1.4	1.1		84.7	
AERIAL OBSERVATION													
ESTIMATED POPULATION	3,132	2,640	278	41	5	59		160	73	197		799	
% STANDARD ERROR	11.1	12.2	38.7	102.5	72.1	57.6		35.9	43.0	43.2		18.4	
% WITH CAPABILITY	59.2	49.9	5.3	0.8	0.1	1.1		3.0	1.4	3.7		15.1	
OTHER WORK USE													
ESTIMATED POPULATION	569	364	2	0	0	0		36	28	0		637	
% STANDARD ERROR	21.4	27.4	475.5	0.0	0.0	0.0		40.2	62.1	0.0		17.5	
% WITH CAPABILITY	37.3	23.8	0.1	0.0	0.0	0.0		2.4	1.8	0.0		41.8	
COMMUTER AIR CARRIER													
ESTIMATED POPULATION	462	436	27	58	0	7		236	518	53		7	
% STANDARD ERROR	22.9	23.8	85.3	76.3	0.0	52.3		21.7	16.1	40.7		180.2	
% WITH CAPABILITY	37.3	35.2	2.2	4.7	0.0	0.6		19.1	41.8	4.3		0.6	

7.10 1990 GENERAL AVIATION AIRCRAFT WITH BASIC, LONG RANGE, AND OTHER NAVIGATION EQUIPMENT  
BY PRIMARY USE

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BASIC NAVIGATION EQUIPMENT

PRIMARY USE	VOR 100CH PORT	VOR 100CH FXD	VOR 200CH PORT	VOR 200CH FXD	1+ VOR	ADF	DME	RNAV
AIR TAXI								
ESTIMATED POPULATION	12	1,481	60	4,235	4,954	5,417	4,444	2,565
% STANDARD ERROR	120.5	15.5	62.7	8.2	7.4	7.1	7.8	11.0
% WITH CAPABILITY	0.2	24.0	1.0	68.5	80.1	87.6	71.9	41.5
OTHER								
ESTIMATED POPULATION	111	808	185	2,015	1,924	1,624	1,512	641
% STANDARD ERROR	56.2	21.4	45.3	11.7	11.7	12.1	12.4	18.9
% WITH CAPABILITY	2.5	16.6	4.2	46.3	44.2	37.3	34.7	14.7
INACTIVE								
ESTIMATED POPULATION	631	9,919	1,664	9,300	9,431	8,544	4,655	1,022
% STANDARD ERROR	24.8	5.2	14.9	5.1	4.6	4.8	6.3	15.9
% WITH CAPABILITY	1.2	18.4	3.1	17.2	17.5	15.8	8.6	1.9
TOTAL								
ESTIMATED POPULATION	4,812	73,549	16,865	129,259	140,724	128,004	88,604	32,030
% STANDARD ERROR	8.6	1.9	4.6	1.1	0.8	0.9	1.2	2.6
% WITH CAPABILITY	1.8	27.6	6.3	48.5	52.8	48.1	33.3	12.0

7.10 1990 GENERAL AVIATION AIRCRAFT WITH BASIC, LONG RANGE, AND OTHER NAVIGATION EQUIPMENT  
BY PRIMARY USE

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PRIMARY USE	LONG RANGE NAVIGATION EQUIPMENT							OTHER NAVIGATION EQUIPMENT			
	LORAN C			LORAN			OMEGA	RADAR ALTIM	WEATHER RADAR	THUNDER STM DET	NO NAV EQ
		VFR ONLY	IFR NAV	APP	IFR						
AIR TAXI											
ESTIMATED POPULATION	3,087	2,499	486		60		164	1,845	2,548	549	307
% STANDARD ERROR	9.7	10.9	23.4		48.1		33.1	11.7	9.8	24.0	34.6
% WITH CAPABILITY	49.9	40.4	7.9		1.0		2.7	29.8	41.2	8.9	5.0
OTHER											
ESTIMATED POPULATION	1,713	1,232	292		134		125	652	682	157	1,159
% STANDARD ERROR	13.0	15.7	27.4		31.5		35.5	17.0	15.3	36.1	15.8
% WITH CAPABILITY	39.3	28.3	6.7		3.1		2.9	15.0	15.7	3.6	26.6
INACTIVE											
ESTIMATED POPULATION	18,022	4,255	816		514		68	463	896	220	33,050
% STANDARD ERROR	3.4	8.7	20.3		26.1		29.0	15.4	11.5	36.1	1.8
% WITH CAPABILITY	33.4	7.9	1.5		1.0		0.1	0.9	1.7	0.4	61.2
TOTAL											
ESTIMATED POPULATION	113,863	81,316	13,506		5,268		2,990	18,430	22,309	16,275	59,585
% STANDARD ERROR	1.3	1.7	4.8		7.9		5.3	2.8	2.2	4.1	1.5
% WITH CAPABILITY	42.8	30.5	5.1		2.0		1.1	6.9	8.4	6.1	22.4

NOTE: COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

7.11 1990 GENERAL AVIATION AIRCRAFT WITH BASIC, LONG RANGE, AND OTHER NAVIGATION EQUIPMENT  
BY REGION OF BASED AIRCRAFT

PAGE OF 4

BASIC NAVIGATION EQUIPMENT

REGION	VOR 100CH PORT	VOR 100CH FXD	VOR 200CH PORT	VOR 200CH FXD	1+ VOR	ADF	DME	RNAV
<b>ALASKAN</b>								
ESTIMATED POPULATION	349	3,442	365	3,029	2,665	4,072	1,314	417
% STANDARD ERROR	33.8	9.3	30.2	10.6	11.9	8.9	17.3	30.3
% WITH CAPABILITY	4.0	39.6	4.2	34.8	30.6	46.8	15.1	4.8
<b>CENTRAL</b>								
ESTIMATED POPULATION	236	3,741	694	6,495	6,951	6,597	4,213	1,817
% STANDARD ERROR	43.6	10.4	22.2	7.5	7.3	7.4	8.9	13.4
% WITH CAPABILITY	1.7	26.3	4.9	45.7	48.9	46.4	29.6	12.8
<b>EASTERN</b>								
ESTIMATED POPULATION	533	8,145	2,395	15,977	17,693	15,233	11,118	3,713
% STANDARD ERROR	26.7	6.9	12.9	4.7	4.4	4.7	5.5	9.2
% WITH CAPABILITY	1.8	27.5	8.1	54.0	59.8	51.5	37.6	12.6
<b>GREAT LAKES</b>								
ESTIMATED POPULATION	1,011	12,674	3,097	21,486	23,307	20,983	14,193	5,936
% STANDARD ERROR	19.1	5.4	10.9	4.0	3.8	4.0	4.8	7.4
% WITH CAPABILITY	2.2	28.1	6.9	47.7	51.7	46.6	31.5	13.2
<b>NEW ENGLAND</b>								
ESTIMATED POPULATION	214	2,897	663	4,900	5,423	4,745	3,085	1,067
% STANDARD ERROR	41.3	11.6	24.2	9.0	8.5	9.0	11.1	18.2
% WITH CAPABILITY	2.2	29.6	6.8	50.0	55.3	48.4	31.5	10.9
<b>NORTHWEST MOUNTAIN</b>								
ESTIMATED POPULATION	578	6,905	1,677	12,922	12,523	11,861	7,521	2,302
% STANDARD ERROR	26.5	7.5	15.2	5.4	5.4	5.5	6.9	11.9
% WITH CAPABILITY	2.3	26.9	6.5	50.4	48.8	46.2	29.3	9.0
<b>SOUTHERN</b>								
ESTIMATED POPULATION	608	11,439	2,900	21,841	25,445	23,252	16,791	6,471
% STANDARD ERROR	23.2	5.7	11.6	4.0	3.6	3.7	4.3	6.7
% WITH CAPABILITY	1.5	27.4	7.0	52.4	61.0	55.8	40.3	15.5
<b>SOUTHWESTERN</b>								
ESTIMATED POPULATION	425	8,789	1,647	17,066	17,752	17,244	11,569	4,333
% STANDARD ERROR	27.1	6.7	15.4	4.5	4.4	4.4	5.3	8.3
% WITH CAPABILITY	1.3	26.5	5.0	51.4	53.5	52.0	34.9	13.1

7.11 1990 GENERAL AVIATION AIRCRAFT WITH BASIC, LONG RANGE, AND OTHER NAVIGATION EQUIPMENT  
BY REGION OF BASED AIRCRAFT

PAGE 2 OF 4

REGION	LONG RANGE NAVIGATION EQUIPMENT										OTHER NAVIGATION EQUIPMENT			
	-----LORAN-----										OTHER			
	LORAN C	VFR ONLY	IFR NAV	APP IFR	OMEGA	OTHER LORNAV	RADAR ALTIM	WEATHER RADAR	THUNDER STM DET	NO NAV EQ				
ALASKAN														
ESTIMATED POPULATION	3,975	3,567	73	52	10	5	141	95	20	1,418				
% STANDARD ERROR	9.1	9.7	71.4	82.0	112.3	195.6	53.6	42.7	135.9	13.8				
% WITH CAPABILITY	45.7	41.0	0.8	0.6	0.1	0.1	1.6	1.1	0.2	16.3				
CENTRAL														
ESTIMATED POPULATION	5,570	3,741	596	203	148	25	1,115	1,205	1,185	3,790				
% STANDARD ERROR	7.9	9.9	22.0	36.1	31.5	78.6	15.7	14.0	17.0	8.9				
% WITH CAPABILITY	39.2	26.3	4.2	1.4	1.0	0.2	7.8	8.5	8.3	26.6				
EASTERN														
ESTIMATED POPULATION	13,419	10,328	1,718	650	464	332	2,196	2,758	2,980	5,662				
% STANDARD ERROR	5.1	5.9	14.1	21.3	16.5	20.6	10.1	9.4	10.8	6.9				
% WITH CAPABILITY	45.4	34.9	5.8	2.2	1.6	1.1	7.4	9.3	10.1	19.1				
GREAT LAKES														
ESTIMATED POPULATION	18,951	13,456	2,535	882	561	345	3,012	3,872	2,622	10,627				
% STANDARD ERROR	4.3	5.2	11.6	20.3	14.7	27.3	9.0	8.1	11.0	5.2				
% WITH CAPABILITY	42.1	29.9	5.6	2.0	1.2	0.8	6.7	8.6	5.8	23.6				
NEW ENGLAND														
ESTIMATED POPULATION	4,636	3,929	469	167	87	78	551	548	847	1,717				
% STANDARD ERROR	9.0	9.9	27.0	45.6	38.0	60.3	22.6	22.2	20.2	13.0				
% WITH CAPABILITY	47.3	40.1	4.8	1.7	0.9	0.8	5.6	5.6	8.6	17.5				
NORTHWEST MOUNTAIN														
ESTIMATED POPULATION	10,945	7,970	1,059	448	192	134	1,377	1,329	604	5,387				
% STANDARD ERROR	5.7	6.8	17.8	26.7	28.7	36.7	14.1	13.8	24.2	7.3				
% WITH CAPABILITY	42.7	31.1	4.1	1.7	0.7	0.5	5.4	5.2	2.4	21.0				
SOUTHERN														
ESTIMATED POPULATION	19,920	15,100	3,193	1,168	442	216	3,373	5,220	3,870	7,625				
% STANDARD ERROR	4.2	4.9	10.4	17.2	19.0	27.6	8.5	7.0	9.4	6.2				
% WITH CAPABILITY	47.8	36.2	7.7	2.8	1.1	0.5	8.1	12.5	9.3	18.3				
SOUTHWESTERN														
ESTIMATED POPULATION	13,664	9,717	1,564	444	387	249	2,766	3,226	2,113	7,122				
% STANDARD ERROR	4.9	6.0	14.2	25.3	17.0	29.6	9.3	8.2	12.3	6.1				
% WITH CAPABILITY	41.2	29.3	4.7	1.3	1.2	0.8	8.3	9.7	6.4	21.5				

7.11 1990 GENERAL AVIATION AIRCRAFT WITH BASIC, LONG RANGE, AND OTHER NAVIGATION EQUIPMENT  
BY REGION OF BASED AIRCRAFT

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BASIC NAVIGATION EQUIPMENT

REGION	VOR 100CH PORT	VOR 100CH FXD	VOR 200CH PORT	VOR 200CH FXD	1+ VOR	ADF	DME	RNAV
WESTERN-PACIFIC ESTIMATED POPULATION & STANDARD ERROR & WITH CAPABILITY	794 19.4 1.7	13,459 5.2 29.5	3,145 11.0 6.9	22,698 3.8 49.8	25,510 3.6 55.9	20,661 4.0 45.3	16,296 4.4 35.7	5,328 7.7 11.7
TOTAL ESTIMATED POPULATION & STANDARD ERROR & WITH CAPABILITY	4,812 8.6 1.8	73,549 1.9 27.6	16,865 4.6 6.3	129,259 1.1 48.5	140,724 0.8 52.8	128,004 0.9 48.1	88,604 1.2 33.3	32,030 2.6 12.0

7.11 1990 GENERAL AVIATION AIRCRAFT WITH BASIC, LONG RANGE, AND OTHER NAVIGATION EQUIPMENT  
BY REGION OF BASED AIRCRAFT

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REGION	LONG RANGE NAVIGATION EQUIPMENT							OTHER NAVIGATION EQUIPMENT			
	-----LORAN-----							RADAR ALTIM	WEATHER RADAR	THUNDER STM DET	NO NAV EQ
	LORAN C	VFR ONLY	IFR NAV	APP	IFR	OMEGA	OTHER LRNAV				
WESTERN-PACIFIC ESTIMATED POPULATION & STANDARD ERROR & WITH CAPABILITY	16,541	11,732	1,927	1,102		490	273	3,257	3,025	1,546	8,595
	4.4	5.3	13.3	17.8		20.1	22.6	8.5	8.2	13.3	5.7
	36.3	25.7	4.2	2.4		1.1	0.6	7.1	6.6	3.4	18.8
TOTAL ESTIMATED POPULATION & STANDARD ERROR & WITH CAPABILITY	113,863	81,316	13,506	5,268		2,990	1,852	18,430	22,309	16,275	59,585
	1.3	1.7	4.8	7.9		5.3	9.3	2.8	2.2	4.1	1.5
	42.8	30.5	5.1	2.0		1.1	0.7	6.9	8.4	6.1	22.4

NOTE: COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

7.12 1990 GENERAL AVIATION AIRCRAFT WITH BASIC, LONG RANGE, AND OTHER NAVIGATION EQUIPMENT  
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BASIC NAVIGATION EQUIPMENT

STATE	VOR 100CH PORT	VOR 100CH FXD	VOR 200CH PORT	VOR 200CH FXD	1+ VOR	ADF	DME	RNAV
ALABAMA								
ESTIMATED POPULATION	41	1,061	198	2,055	2,390	2,332	1,476	472
% STANDARD ERROR	94.8	19.8	43.2	13.5	12.9	13.0	15.7	24.0
% WITH CAPABILITY	1.0	26.5	5.0	51.4	59.8	58.3	36.9	11.8
ALASKA								
ESTIMATED POPULATION	349	3,442	365	3,029	2,665	4,072	1,314	417
% STANDARD ERROR	33.8	9.3	30.2	10.6	11.9	8.9	17.3	30.3
% WITH CAPABILITY	4.0	39.6	4.2	34.8	30.6	46.8	15.1	4.8
ARIZONA								
ESTIMATED POPULATION	49	1,743	539	3,243	3,794	3,032	2,287	596
% STANDARD ERROR	70.1	14.9	26.1	10.7	10.0	11.0	12.4	23.5
% WITH CAPABILITY	0.7	26.4	8.2	49.2	57.6	46.0	34.7	9.0
ARKANSAS								
ESTIMATED POPULATION	20	767	88	1,181	1,336	1,170	839	351
% STANDARD ERROR	124.2	23.3	66.3	17.6	16.4	17.4	19.9	30.2
% WITH CAPABILITY	0.7	27.1	3.1	41.7	47.2	41.3	29.7	12.4
CALIFORNIA								
ESTIMATED POPULATION	730	10,762	2,426	18,286	20,240	16,541	12,901	4,426
% STANDARD ERROR	20.4	5.9	12.6	4.3	4.1	4.5	5.0	8.6
% WITH CAPABILITY	2.0	29.9	6.7	50.8	56.2	46.0	35.9	12.3
COLORADO								
ESTIMATED POPULATION	53	888	362	2,868	2,679	2,314	1,953	621
% STANDARD ERROR	60.6	21.1	33.4	11.9	12.2	13.1	14.3	24.5
% WITH CAPABILITY	1.1	17.6	7.2	57.0	53.2	46.0	38.8	12.3
CONNECTICUT								
ESTIMATED POPULATION	30	484	194	1,084	1,355	1,051	920	344
% STANDARD ERROR	82.8	27.4	42.6	19.4	16.9	19.1	20.4	31.9
% WITH CAPABILITY	1.3	22.0	8.8	49.3	61.5	47.8	41.8	15.6
DELAWARE								
ESTIMATED POPULATION	65	243	24	975	1,020	936	726	404
% STANDARD ERROR	65.4	41.2	115.2	19.5	19.2	19.9	21.7	30.0
% WITH CAPABILITY	4.8	17.9	1.8	71.9	75.2	69.0	53.5	29.8



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STATE	LONG RANGE NAVIGATION EQUIPMENT										OTHER NAVIGATION EQUIPMENT			
	-----LORAN-----													
	LORAN C	VFR ONLY	IFR NAV	APP IFR	OMEGA	OTHER LRNAV	RADAR ALTIM	WEATHER RADAR	THUNDER STM DET	NO NAV EQ				
ALABAMA														
ESTIMATED POPULATION	1,972	1,525	440	133	61	16	328	525	279	706				
% STANDARD ERROR	14.1	16.3	30.5	52.0	50.3	74.4	28.3	22.9	33.0	21.7				
% WITH CAPABILITY	49.3	38.1	11.0	3.3	1.5	0.4	8.2	13.1	7.0	17.6				
ALASKA														
ESTIMATED POPULATION	3,975	3,567	73	52	10	5	141	95	20	1,418				
% STANDARD ERROR	9.1	9.7	71.4	82.0	112.3	195.6	53.6	42.7	135.9	13.8				
% WITH CAPABILITY	45.7	41.0	0.8	0.6	0.1	0.1	1.6	1.1	0.2	16.3				
ARIZONA														
ESTIMATED POPULATION	2,204	1,410	390	233	30	1	386	361	251	1,478				
% STANDARD ERROR	12.9	16.3	31.6	42.7	68.4	323.4	27.6	25.7	35.7	14.6				
% WITH CAPABILITY	33.4	21.4	5.9	3.5	0.5	0.0	5.8	5.5	3.8	22.4				
ARKANSAS														
ESTIMATED POPULATION	1,495	957	151	62	20	19	187	273	177	830				
% STANDARD ERROR	15.3	20.2	44.2	63.3	92.7	94.4	35.2	29.7	45.7	18.6				
% WITH CAPABILITY	52.8	33.8	5.3	2.2	0.7	0.7	6.6	9.6	6.2	29.3				
CALIFORNIA														
ESTIMATED POPULATION	13,545	9,855	1,484	860	419	265	2,696	2,433	1,162	6,430				
% STANDARD ERROR	5.0	5.9	14.9	19.7	22.3	23.0	9.4	9.4	15.1	6.6				
% WITH CAPABILITY	37.6	27.4	4.1	2.4	1.2	0.7	7.5	6.8	3.2	17.9				
COLORADO														
ESTIMATED POPULATION	1,692	1,085	249	54	44	14	206	252	265	1,177				
% STANDARD ERROR	14.8	18.9	39.9	84.7	62.3	120.3	36.1	32.1	38.3	15.4				
% WITH CAPABILITY	33.6	21.6	4.9	1.1	0.9	0.3	4.1	5.0	5.3	23.4				
CONNECTICUT														
ESTIMATED POPULATION	1,013	819	160	7	31	29	145	175	284	407				
% STANDARD ERROR	19.7	22.1	45.7	147.4	58.6	58.8	34.9	37.5	33.5	26.7				
% WITH CAPABILITY	46.0	37.2	7.3	0.3	1.4	1.3	6.6	8.0	12.9	18.5				
DELAWARE														
ESTIMATED POPULATION	803	584	164	39	47	22	220	244	205	88				
% STANDARD ERROR	20.9	24.8	46.0	79.8	62.3	87.2	33.2	30.8	40.6	52.3				
% WITH CAPABILITY	59.2	43.1	12.1	2.8	3.5	1.6	16.2	18.0	15.1	6.5				

7.12 1990 GENERAL AVIATION AIRCRAFT WITH BASIC, LONG RANGE, AND OTHER NAVIGATION EQUIPMENT  
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BASIC NAVIGATION EQUIPMENT

STATE	VOR 100CH PORT	VOR 100CH FXD	VOR 200CH PORT	VOR 200CH FXD	1+ VOR	ADF	DME	RNAV
DISTRICT OF COLUMBIA								
ESTIMATED POPULATION	0	0	2	8	8	8	6	6
% STANDARD ERROR	0.0	0.0	375.6	146.9	146.9	146.9	176.4	176.4
% WITH CAPABILITY	0.0	0.0	16.4	58.4	58.4	58.4	45.8	45.8
FLORIDA								
ESTIMATED POPULATION	136	4,820	1,322	8,058	10,036	8,999	6,741	2,432
% STANDARD ERROR	47.9	8.8	17.6	6.9	6.0	6.3	7.2	11.5
% WITH CAPABILITY	0.9	30.1	8.3	50.4	62.7	56.3	42.2	15.2
GEORGIA								
ESTIMATED POPULATION	132	1,154	322	3,009	3,208	2,785	2,298	1,037
% STANDARD ERROR	41.6	18.4	32.7	11.3	10.9	11.6	12.7	17.9
% WITH CAPABILITY	2.5	21.4	6.0	56.0	59.7	51.8	42.7	19.3
HAWAII								
ESTIMATED POPULATION	6	135	5	247	228	108	156	33
% STANDARD ERROR	264.2	52.1	219.1	36.6	38.8	54.2	44.4	82.6
% WITH CAPABILITY	1.0	22.1	0.8	40.4	37.4	17.8	25.5	5.5
IDAHO								
ESTIMATED POPULATION	67	534	193	1,120	981	969	692	271
% STANDARD ERROR	77.7	26.2	47.7	18.9	19.6	20.0	22.1	36.0
% WITH CAPABILITY	3.3	26.4	9.5	55.4	48.5	47.9	34.2	13.4
ILLINOIS								
ESTIMATED POPULATION	134	1,549	886	4,743	4,868	4,348	3,183	1,451
% STANDARD ERROR	49.1	15.8	21.0	9.0	8.9	9.4	10.8	15.2
% WITH CAPABILITY	1.7	19.1	10.9	58.6	60.2	53.7	39.3	17.9
INDIANA								
ESTIMATED POPULATION	81	1,192	298	2,454	2,826	2,416	1,774	555
% STANDARD ERROR	62.5	18.6	33.6	12.3	11.7	12.6	14.4	22.8
% WITH CAPABILITY	1.8	25.9	6.5	53.3	61.4	52.5	38.5	12.0
IOWA								
ESTIMATED POPULATION	103	685	184	1,759	1,635	1,520	1,048	358
% STANDARD ERROR	67.4	23.9	49.0	14.8	15.3	15.7	18.3	30.1
% WITH CAPABILITY	3.2	21.2	5.7	54.3	50.5	46.9	32.4	11.0

7.12 1990 GENERAL AVIATION AIRCRAFT WITH BASIC, LONG RANGE, AND OTHER NAVIGATION EQUIPMENT  
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STATE	LONG RANGE NAVIGATION EQUIPMENT										OTHER NAVIGATION EQUIPMENT					
	-----LORAN-----					OMEGA					OTHER					
	LORAN C	VFR ONLY	IFR ONLY	IFR NAV	APP IFR	LORAN C	VFR ONLY	IFR ONLY	IFR NAV	APP IFR	OMEGA	OTHER LRNAV	RADAR ALTIM	WEATHER RADAR	THUNDER STM DET	NO NAV EQ
DISTRICT OF COLUMBIA																
ESTIMATED POPULATION																
% STANDARD ERROR																
% WITH CAPABILITY																
FLORIDA																
ESTIMATED POPULATION																
% STANDARD ERROR																
% WITH CAPABILITY																
GEORGIA																
ESTIMATED POPULATION																
% STANDARD ERROR																
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HAWAII																
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IDAHO																
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ILLINOIS																
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INDIANA																
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% STANDARD ERROR																
% WITH CAPABILITY																
IOWA																
ESTIMATED POPULATION																
% STANDARD ERROR																
% WITH CAPABILITY																

7.12 1990 GENERAL AVIATION AIRCRAFT WITH BASIC, LONG RANGE, AND OTHER NAVIGATION EQUIPMENT  
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BASIC NAVIGATION EQUIPMENT

STATE	VOR 100CH PORT	VOR 100CH FXD	VOR 200CH PORT	VOR 200CH FXD	1+ VOR	ADF	DME	RNAV
KANSAS								
ESTIMATED POPULATION	81	1,148	126	1,668	2,017	1,900	1,300	585
% STANDARD ERROR	67.0	19.0	46.9	14.7	13.8	14.1	16.5	24.2
% WITH CAPABILITY	2.0	28.8	3.1	41.8	50.5	47.6	32.6	14.7
KENTUCKY								
ESTIMATED POPULATION	15	542	151	934	1,102	947	661	167
% STANDARD ERROR	104.6	27.0	56.8	20.4	19.2	20.6	24.0	40.7
% WITH CAPABILITY	0.8	29.0	8.1	49.9	58.9	50.6	35.3	9.0
LOUISIANA								
ESTIMATED POPULATION	131	674	44	1,933	1,611	2,264	1,076	524
% STANDARD ERROR	48.8	25.3	70.7	13.8	15.1	12.8	17.7	24.9
% WITH CAPABILITY	3.4	17.6	1.2	50.6	42.1	59.2	28.2	13.7
MAINE								
ESTIMATED POPULATION	37	567	77	775	731	814	438	122
% STANDARD ERROR	104.2	26.8	67.5	23.5	24.5	23.1	31.6	59.7
% WITH CAPABILITY	2.0	31.0	4.2	42.4	40.0	44.6	24.0	6.7
MARYLAND								
ESTIMATED POPULATION	187	1,001	472	1,998	2,196	2,020	1,391	434
% STANDARD ERROR	48.4	20.1	29.5	14.1	13.4	14.0	16.4	28.2
% WITH CAPABILITY	5.4	29.0	13.7	58.0	63.7	58.6	40.3	12.6
MASSACHUSETTS								
ESTIMATED POPULATION	129	1,025	240	1,908	2,110	1,905	1,072	366
% STANDARD ERROR	56.3	20.0	40.1	14.5	13.8	14.4	18.8	31.1
% WITH CAPABILITY	3.9	30.9	7.2	57.5	63.6	57.4	32.3	11.0
MICHIGAN								
ESTIMATED POPULATION	221	2,958	594	4,158	4,888	4,241	2,898	1,293
% STANDARD ERROR	42.1	11.6	25.5	9.7	8.9	9.5	11.3	16.3
% WITH CAPABILITY	2.5	33.4	6.7	46.9	55.2	47.9	32.7	14.6
MINNESOTA								
ESTIMATED POPULATION	203	1,969	421	2,538	2,696	2,517	1,567	544
% STANDARD ERROR	43.5	13.6	30.9	12.2	12.0	12.3	15.3	25.6
% WITH CAPABILITY	3.3	31.8	6.8	41.0	43.5	40.6	25.3	8.8

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STATE	LONG RANGE NAVIGATION EQUIPMENT										OTHER NAVIGATION EQUIPMENT			
	-----LORAN-----										OTHER			
	LORAN C	VFR ONLY	IFR NAV	APP	IFR	OMEGA	OTHER LRNAV	RADAR ALTIM	WEATHER RADAR	THUNDER STM DET	NO NAV EQ			
KANSAS														
ESTIMATED POPULATION	1,582	1,073	143		87	41	4	411	363	271	1,006			
% STANDARD ERROR	15.3	19.1	42.0		51.7	68.0	167.8	27.4	27.0	34.2	18.0			
% WITH CAPABILITY	39.6	26.9	3.6		2.2	1.0	0.1	10.3	9.1	6.8	25.2			
KENTUCKY														
ESTIMATED POPULATION	752	550	120		36	20	22	120	218	219	322			
% STANDARD ERROR	22.0	26.7	51.9		89.2	88.8	73.9	41.9	36.9	41.0	29.0			
% WITH CAPABILITY	40.2	29.4	6.4		1.9	1.0	1.2	6.4	11.7	11.7	17.2			
LOUISIANA														
ESTIMATED POPULATION	2,306	1,666	349		57	16	9	638	423	364	834			
% STANDARD ERROR	12.1	14.5	32.4		80.9	87.9	139.4	22.7	24.7	31.9	19.3			
% WITH CAPABILITY	60.3	43.6	9.1		1.5	0.4	0.2	16.7	11.1	9.5	21.8			
MAINE														
ESTIMATED POPULATION	849	744	53		37	0	0	32	63	27	368			
% STANDARD ERROR	21.8	23.7	86.5		115.8	0.0	0.0	105.7	77.8	116.7	30.2			
% WITH CAPABILITY	46.5	40.7	2.9		2.0	0.0	0.0	1.7	3.5	1.5	20.2			
MARYLAND														
ESTIMATED POPULATION	1,765	1,406	314		135	27	17	241	211	528	510			
% STANDARD ERROR	14.6	16.5	33.0		48.9	66.2	96.8	35.6	35.2	26.7	25.3			
% WITH CAPABILITY	51.2	40.8	9.1		3.0	0.8	0.5	7.0	6.1	15.3	14.8			
MASSACHUSETTS														
ESTIMATED POPULATION	1,700	1,485	174		95	44	42	244	194	371	395			
% STANDARD ERROR	15.0	16.5	44.5		57.9	55.5	101.5	35.8	35.4	31.3	25.0			
% WITH CAPABILITY	51.2	44.8	5.2		2.9	1.3	1.3	7.4	5.8	11.2	11.9			
MICHIGAN														
ESTIMATED POPULATION	3,438	2,585	571		155	111	39	572	682	603	1,659			
% STANDARD ERROR	10.4	12.1	24.1		37.8	37.7	77.0	20.5	19.1	23.6	13.3			
% WITH CAPABILITY	38.8	29.2	6.4		1.7	1.3	0.4	6.5	7.7	6.8	18.7			
MINNESOTA														
ESTIMATED POPULATION	2,645	1,781	314		100	43	84	298	342	342	1,599			
% STANDARD ERROR	12.1	14.9	34.0		59.7	51.5	70.8	32.0	27.1	32.3	13.9			
% WITH CAPABILITY	42.7	28.8	5.1		1.6	0.7	1.4	4.8	5.5	5.5	25.8			

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BASIC NAVIGATION EQUIPMENT

STATE	VOR 100CH PORT	VOR 100CH FXD	VOR 200CH PORT	VOR 200CH FXD	1+ VOR	ADF	DME	RNAV
MISSISSIPPI								
ESTIMATED POPULATION	7	435	112	1,033	1,014	947	524	228
% STANDARD ERROR	100.5	30.5	67.2	19.6	19.6	20.4	25.4	37.9
% WITH CAPABILITY	0.4	21.6	5.6	51.4	50.4	47.1	26.1	11.3
MISSOURI								
ESTIMATED POPULATION	1	1,284	297	2,283	2,329	2,297	1,201	509
% STANDARD ERROR	114.9	18.0	32.2	12.8	12.9	12.9	16.9	25.6
% WITH CAPABILITY	0.0	26.3	6.1	46.8	47.8	47.1	24.6	10.4
MONTANA								
ESTIMATED POPULATION	29	671	85	1,026	935	1,022	573	196
% STANDARD ERROR	107.8	25.0	67.6	19.0	20.1	19.1	25.1	42.2
% WITH CAPABILITY	1.2	28.4	3.6	43.4	39.6	43.2	24.2	8.3
NEBRASKA								
ESTIMATED POPULATION	50	624	88	785	969	880	664	364
% STANDARD ERROR	104.8	25.3	63.7	20.7	19.1	19.6	22.0	30.0
% WITH CAPABILITY	2.4	29.5	4.1	37.1	45.8	41.6	31.4	17.2
NEVADA								
ESTIMATED POPULATION	8	819	175	922	1,247	980	953	272
% STANDARD ERROR	63.5	21.8	47.1	19.4	16.9	19.4	19.6	33.8
% WITH CAPABILITY	0.3	33.9	7.2	38.2	51.6	40.5	39.4	11.2
NEW HAMPSHIRE								
ESTIMATED POPULATION	8	533	94	635	705	583	383	167
% STANDARD ERROR	163.6	26.2	71.4	24.1	23.0	24.8	29.5	43.8
% WITH CAPABILITY	0.5	37.2	6.6	44.2	49.2	40.6	26.7	11.6
NEW JERSEY								
ESTIMATED POPULATION	6	1,283	318	2,512	2,724	2,225	1,895	524
% STANDARD ERROR	147.6	17.5	34.6	12.3	11.7	12.8	13.8	24.0
% WITH CAPABILITY	0.1	29.6	7.4	58.0	62.9	51.4	43.8	12.1
NEW MEXICO								
ESTIMATED POPULATION	1	837	152	1,052	1,251	1,180	866	246
% STANDARD ERROR	168.9	22.3	52.1	18.9	17.7	18.1	20.9	36.6
% WITH CAPABILITY	0.0	32.0	5.8	40.2	47.8	45.1	33.1	9.4

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LONG RANGE NAVIGATION EQUIPMENT

OTHER NAVIGATION EQUIPMENT

EQUIPMENT

STATE	LORAN C				VFR ONLY		IFR NAV		APP IFR		OMEGA	OTHER IRNAV	RADAR ALTIM	WEATHER RADAR	THUNDER STM DET	NO NAV EQ

MISSISSIPPI  
ESTIMATED POPULATION  
% STANDARD ERROR  
% WITH CAPABILITY

1,018	700	167	35	20	17	111	225	105	458
19.2	24.2	44.4	85.1	77.1	103.3	49.7	37.2	55.3	24.5
50.6	34.8	8.3	1.7	1.0	0.8	5.5	11.2	5.2	22.8

MISSOURI  
ESTIMATED POPULATION  
% STANDARD ERROR  
% WITH CAPABILITY

2,167	1,502	324	94	55	15	345	351	586	1,252
12.8	15.3	32.2	57.6	48.2	112.0	28.5	27.8	24.7	16.1
44.4	30.8	6.7	1.9	1.1	0.3	7.1	7.2	12.0	25.7

MONTANA  
ESTIMATED POPULATION  
% STANDARD ERROR  
% WITH CAPABILITY

1,047	581	108	94	3	0	72	103	17	618
19.0	25.3	57.4	64.1	175.6	0.0	58.5	53.7	128.9	23.0
44.3	24.6	4.6	4.0	0.1	0.0	3.0	4.4	0.7	26.1

NEBRASKA  
ESTIMATED POPULATION  
% STANDARD ERROR  
% WITH CAPABILITY

780	488	43	18	21	6	149	245	88	696
20.5	27.4	73.2	98.2	69.3	129.0	41.5	33.6	58.1	19.7
36.9	23.1	2.0	0.9	1.0	0.3	7.0	11.6	4.2	32.9

NEVADA  
ESTIMATED POPULATION  
% STANDARD ERROR  
% WITH CAPABILITY

643	459	53	8	39	0	144	200	130	484
21.2	25.3	78.4	75.8	65.3	0.0	39.1	36.2	53.3	24.8
26.6	19.0	2.2	0.3	1.6	0.0	6.0	8.3	5.4	20.0

NEW HAMPSHIRE  
ESTIMATED POPULATION  
% STANDARD ERROR  
% WITH CAPABILITY

585	467	59	13	9	7	90	68	94	349
23.2	25.3	72.8	132.8	104.2	138.2	58.6	64.3	58.4	29.7
40.8	32.5	4.1	0.9	0.6	0.5	6.3	4.7	6.6	24.3

NEW JERSEY  
ESTIMATED POPULATION  
% STANDARD ERROR  
% WITH CAPABILITY

2,099	1,582	251	63	80	58	267	374	514	751
13.4	15.5	37.0	69.5	41.3	46.8	27.8	25.9	26.5	19.6
48.5	36.5	5.8	1.5	1.9	1.3	6.2	8.6	11.9	17.3

NEW MEXICO  
ESTIMATED POPULATION  
% STANDARD ERROR  
% WITH CAPABILITY

775	492	54	75	13	12	115	171	81	896
20.8	26.8	66.3	73.0	136.5	140.9	47.2	38.5	58.5	16.8
29.6	18.8	2.1	2.9	0.5	0.5	4.4	6.5	3.1	34.3

7.12 1990 GENERAL AVIATION AIRCRAFT WITH BASIC, LONG RANGE, AND OTHER NAVIGATION EQUIPMENT  
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BASIC NAVIGATION EQUIPMENT

STATE	VOR 100CH PORT	VOR 100CH FXD	VOR 200CH PORT	VOR 200CH FXD	1+ VOR	ADF	DME	RNAV
NEW YORK								
ESTIMATED POPULATION	103	2,159	897	4,002	4,576	3,846	2,752	890
% STANDARD ERROR	62.7	13.8	21.6	9.8	9.2	9.8	11.5	19.3
% WITH CAPABILITY	1.3	27.3	11.3	50.5	57.8	48.5	34.7	11.2
NORTH CAROLINA								
ESTIMATED POPULATION	189	1,390	366	3,134	3,531	3,408	2,304	860
% STANDARD ERROR	46.8	16.8	31.3	11.2	10.5	10.7	12.9	19.9
% WITH CAPABILITY	3.5	25.8	6.8	58.2	65.6	63.3	42.8	16.0
NORTH DAKOTA								
ESTIMATED POPULATION	19	568	64	537	515	609	402	186
% STANDARD ERROR	115.3	26.8	75.9	27.7	28.2	26.4	31.6	46.4
% WITH CAPABILITY	1.0	31.3	3.5	29.5	28.4	33.5	22.1	10.2
OHIO								
ESTIMATED POPULATION	312	2,608	568	4,684	4,800	4,396	2,761	1,121
% STANDARD ERROR	35.8	12.3	24.0	9.0	8.8	9.2	11.1	17.2
% WITH CAPABILITY	3.5	29.1	6.3	52.2	53.5	49.0	30.8	12.5
OKLAHOMA								
ESTIMATED POPULATION	118	1,285	245	2,274	2,580	2,367	1,672	621
% STANDARD ERROR	54.0	17.9	39.6	12.9	12.2	12.7	14.6	22.8
% WITH CAPABILITY	2.6	28.6	5.4	50.6	57.4	52.6	37.2	13.8
OREGON								
ESTIMATED POPULATION	38	1,660	581	2,976	2,892	2,804	1,689	604
% STANDARD ERROR	101.3	15.5	25.8	11.5	11.5	11.7	14.8	23.2
% WITH CAPABILITY	0.7	28.7	10.0	51.4	50.0	48.4	29.2	10.4
PENNSYLVANIA								
ESTIMATED POPULATION	99	2,144	317	3,666	4,318	3,653	2,471	788
% STANDARD ERROR	59.9	13.7	32.6	10.0	9.4	10.1	12.0	20.2
% WITH CAPABILITY	1.3	28.2	4.2	48.3	56.9	48.1	32.6	10.4
RHODE ISLAND								
ESTIMATED POPULATION	7	108	12	224	257	231	132	36
% STANDARD ERROR	267.3	64.2	168.1	40.7	39.6	42.1	54.0	101.8
% WITH CAPABILITY	1.7	28.2	3.1	58.4	66.9	60.1	34.2	9.5



7.12 1990 GENERAL AVIATION AIRCRAFT WITH BASIC, LONG RANGE, AND OTHER NAVIGATION EQUIPMENT  
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STATE	LONG RANGE NAVIGATION EQUIPMENT							OTHER NAVIGATION EQUIPMENT			
	LORAN C			LORAN				RADAR ALTIM	WEATHER RADAR	THUNDER STM DET	NO NAV EQ
	ESTIMATED POPULATION & STANDARD ERROR & WITH CAPABILITY	VFR ONLY	IFR NAV	IFR	APP	IFR	OMEGA				
NEW YORK											
ESTIMATED POPULATION	2,897	2,123	272	169			174	735	806	692	1,956
% STANDARD ERROR	11.4	13.5	37.1	46.3			27.3	18.5	18.2	22.6	12.2
% WITH CAPABILITY	36.6	26.8	3.4	2.1			2.2	9.3	10.2	8.7	24.7
NORTH CAROLINA											
ESTIMATED POPULATION	2,768	2,176	498	187			55	459	554	678	910
% STANDARD ERROR	11.6	13.4	26.2	44.2			76.1	26.1	23.3	23.3	18.1
% WITH CAPABILITY	51.4	40.4	9.2	3.5			1.0	8.5	10.3	12.6	16.9
NORTH DAKOTA											
ESTIMATED POPULATION	630	209	34	31			5	44	41	15	736
% STANDARD ERROR	24.1	44.9	119.3	127.0			200.2	81.3	79.8	124.3	20.7
% WITH CAPABILITY	34.7	11.5	1.9	1.7			0.3	2.4	2.2	0.8	40.5
OHIO											
ESTIMATED POPULATION	3,864	2,612	558	311			182	758	993	599	1,795
% STANDARD ERROR	9.9	12.0	26.0	37.6			27.5	18.4	17.0	23.1	13.4
% WITH CAPABILITY	43.1	29.1	6.2	3.5			2.0	8.5	11.1	6.7	20.0
OKLAHOMA											
ESTIMATED POPULATION	1,919	1,339	119	106			33	284	377	363	898
% STANDARD ERROR	14.3	17.1	46.2	52.3			61.8	29.7	26.4	32.2	19.8
% WITH CAPABILITY	42.7	29.8	2.6	2.4			0.7	6.3	8.4	8.1	20.0
OREGON											
ESTIMATED POPULATION	2,908	2,362	287	77			48	472	339	66	877
% STANDARD ERROR	11.3	12.9	33.4	55.6			54.2	25.1	25.3	71.6	17.6
% WITH CAPABILITY	50.3	40.8	5.0	1.3			0.8	8.2	5.9	1.1	15.2
PENNSYLVANIA											
ESTIMATED POPULATION	5,678	2,810	457	102			77	351	656	551	1,612
% STANDARD ERROR	9.9	11.5	27.7	44.8			41.3	23.6	21.6	25.2	13.1
% WITH CAPABILITY	48.5	37.0	6.0	1.3			1.0	4.6	8.6	7.3	21.2
RHODE ISLAND											
ESTIMATED POPULATION	204	188	12	8			1	23	24	35	40
% STANDARD ERROR	44.0	45.7	182.6	233.3			521.8	132.9	119.6	110.1	84.7
% WITH CAPABILITY	53.0	48.8	3.2	2.2			0.4	6.1	6.2	9.1	10.3

7.12 1990 GENERAL AVIATION AIRCRAFT WITH BASIC, LONG RANGE, AND OTHER NAVIGATION EQUIPMENT  
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BASIC NAVIGATION EQUIPMENT

STATE	VOR 100CH PORT	VOR 100CH FXD	VOR 200CH PORT	VOR 200CH FXD	1+ VOR	ADF	DME	RNAV
<b>SOUTH CAROLINA</b>								
ESTIMATED POPULATION	58	696	181	1,127	1,431	1,247	912	339
% STANDARD ERROR	80.5	22.9	43.3	18.8	16.1	17.5	19.9	29.8
% WITH CAPABILITY	2.5	29.5	7.7	47.7	60.6	52.8	38.6	14.3
<b>SOUTH DAKOTA</b>								
ESTIMATED POPULATION	9	315	26	428	403	444	278	135
% STANDARD ERROR	140.5	33.2	88.5	31.6	30.4	29.9	37.2	53.7
% WITH CAPABILITY	0.7	23.3	1.9	31.6	29.8	32.8	20.6	10.0
<b>TENNESSEE</b>								
ESTIMATED POPULATION	16	1,158	244	2,130	2,256	2,083	1,579	842
% STANDARD ERROR	117.4	19.2	40.1	12.9	12.5	12.9	14.6	19.0
% WITH CAPABILITY	0.4	28.2	6.0	51.9	55.0	50.8	38.5	20.5
<b>TEXAS</b>								
ESTIMATED POPULATION	155	5,227	1,118	10,626	10,974	10,263	7,116	2,590
% STANDARD ERROR	43.3	8.7	19.0	5.8	5.7	5.8	6.8	10.7
% WITH CAPABILITY	0.8	26.9	5.8	54.7	56.5	52.9	36.7	13.3
<b>UTAH</b>								
ESTIMATED POPULATION	68	620	75	843	972	803	564	129
% STANDARD ERROR	79.2	26.5	76.6	21.5	20.1	21.6	24.9	51.0
% WITH CAPABILITY	4.1	37.7	4.6	51.3	59.2	48.9	34.4	7.9
<b>VERMONT</b>								
ESTIMATED POPULATION	5	180	45	274	265	161	140	32
% STANDARD ERROR	163.0	46.0	96.8	38.3	39.5	47.1	51.4	113.1
% WITH CAPABILITY	0.8	28.3	7.0	43.1	41.7	25.3	21.9	5.0
<b>VIRGINIA</b>								
ESTIMATED POPULATION	71	898	242	2,126	2,116	1,816	1,289	463
% STANDARD ERROR	69.9	20.4	40.3	13.7	13.2	14.2	16.4	25.1
% WITH CAPABILITY	1.9	24.6	6.6	58.2	57.9	49.7	35.3	12.7
<b>WASHINGTON</b>								
ESTIMATED POPULATION	319	2,359	362	3,529	3,611	3,472	1,852	396
% STANDARD ERROR	37.5	13.0	30.4	10.5	10.4	10.6	14.2	27.0
% WITH CAPABILITY	4.0	29.9	4.6	44.7	45.8	44.0	23.5	5.0

7.12 1990 GENERAL AVIATION AIRCRAFT WITH BASIC, LONG RANGE, AND OTHER NAVIGATION EQUIPMENT  
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STATE	LONG RANGE NAVIGATION EQUIPMENT							OTHER NAVIGATION EQUIPMENT				NO NAV EQ
	-----LORAN-----							RADAR ALTIM	WEATHER PADAR	THUNDER STM DET		
	LORAN C	VFR ONLY	IFR NAV	APP IFR	OMEGA	OTHER LRNAV						
SOUTH CAROLINA												
ESTIMATED POPULATION	1,003	690	224	53	10	4	200	246	245		477	
% STANDARD ERROR	19.0	23.0	40.6	91.3	100.1	170.7	35.7	33.3	35.8		26.0	
% WITH CAPABILITY	42.4	29.2	9.5	2.2	0.4	0.2	8.5	10.4	10.4		20.2	
SOUTH DAKOTA												
ESTIMATED POPULATION	389	210	36	7	3	0	40	76	19		574	
% STANDARD ERROR	30.4	43.1	108.9	204.5	199.3	0.0	76.5	60.9	133.0		23.0	
% WITH CAPABILITY	28.8	15.5	2.7	0.5	0.2	0.0	2.9	5.6	1.4		42.5	
TENNESSEE												
ESTIMATED POPULATION	1,820	1,431	276	101	109	28	587	801	352		760	
% STANDARD ERROR	14.4	16.6	32.8	48.3	36.2	72.4	21.4	18.8	31.7		21.8	
% WITH CAPABILITY	44.4	34.9	6.7	2.5	2.7	0.7	14.3	19.5	8.6		18.5	
TEXAS												
ESTIMATED POPULATION	7,169	5,263	891	144	305	193	1,542	1,983	1,128		3,664	
% STANDARD ERROR	6.9	8.2	18.8	37.4	18.5	35.1	11.8	10.5	16.1		8.7	
% WITH CAPABILITY	36.9	27.1	4.6	0.7	1.6	1.0	7.9	10.2	5.8		18.9	
UTAH												
ESTIMATED POPULATION	785	657	27	13	54	50	189	164	57		259	
% STANDARD ERROR	23.2	25.5	93.4	117.9	63.3	67.1	39.2	40.8	77.8		37.3	
% WITH CAPABILITY	47.8	40.0	1.7	0.8	3.3	3.0	11.5	10.0	3.5		15.8	
VERMONT												
ESTIMATED POPULATION	286	227	11	6	2	0	16	24	36		160	
% STANDARD ERROR	36.4	41.3	150.4	186.7	356.3	0.0	126.2	125.8	102.2		42.4	
% WITH CAPABILITY	45.0	35.6	1.8	0.9	0.2	0.0	2.5	3.8	5.6		25.1	
VIRGINIA												
ESTIMATED POPULATION	1,587	1,314	158	65	55	28	291	362	401		601	
% STANDARD ERROR	15.4	17.5	38.5	47.1	44.9	65.0	27.1	22.4	30.2		20.5	
% WITH CAPABILITY	43.4	35.9	4.3	1.8	1.5	0.8	8.0	9.9	11.0		16.4	
WASHINGTON												
ESTIMATED POPULATION	3,049	2,184	259	157	19	36	205	246	75		1,860	
% STANDARD ERROR	10.8	13.0	35.7	46.1	93.6	62.0	36.5	36.5	67.3		13.0	
% WITH CAPABILITY	38.6	27.7	3.3	2.0	0.2	0.5	2.6	3.1	0.9		23.6	

7.12 1990 GENERAL AVIATION AIRCRAFT WITH BASIC, LONG RANGE, AND OTHER NAVIGATION EQUIPMENT  
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BASIC NAVIGATION EQUIPMENT

STATE	VOR 100CH PORT	VOR 100CH FXD	VOR 200CH PORT	VOR 200CH FXD	1+ VOR	ADF	DME	RNAV
WEST VIRGINIA								
ESTIMATED POPULATION	2	417	122	690	735	730	588	205
% STANDARD ERROR	483.9	31.2	61.2	24.3	23.2	23.3	26.3	42.1
% WITH CAPABILITY	0.1	33.2	9.7	55.0	58.5	58.2	46.8	16.3
WISCONSIN								
ESTIMATED POPULATION	32	1,515	240	1,946	2,312	2,014	1,331	651
% STANDARD ERROR	89.7	16.4	40.3	14.0	13.0	14.0	16.5	24.0
% WITH CAPABILITY	0.6	29.2	4.6	37.6	44.6	38.9	25.7	12.6
WYOMING								
ESTIMATED POPULATION	3	172	18	559	452	477	198	86
% STANDARD ERROR	327.9	40.9	128.9	26.6	29.1	28.4	39.8	56.2
% WITH CAPABILITY	0.3	18.8	2.0	60.8	49.2	51.9	21.5	9.4
PUERTO RICO								
ESTIMATED POPULATION	5	149	2	292	391	418	238	82
% STANDARD ERROR	177.2	51.1	438.2	35.8	31.2	30.1	41.3	53.3
% WITH CAPABILITY	1.1	31.1	0.4	60.8	81.5	87.0	49.6	17.1
OTHER U.S. TERRITORIES								
ESTIMATED POPULATION	7	34	2	69	86	86	58	11
% STANDARD ERROR	255.2	109.7	477.8	72.9	66.5	66.2	79.2	153.8
% WITH CAPABILITY	6.9	31.6	2.0	63.7	78.9	78.8	53.4	9.9
TOTAL								
ESTIMATED POPULATION	4,812	73,549	16,865	129,259	140,724	128,004	88,604	32,030
% STANDARD ERROR	8.6	1.9	4.6	1.1	0.8	0.9	1.2	2.6
% WITH CAPABILITY	1.8	27.6	6.3	48.5	52.8	48.1	33.3	12.0

7.12 1990 GENERAL AVIATION AIRCRAFT WITH BASIC, LONG RANGE, AND OTHER NAVIGATION EQUIPMENT  
BY STATE OF BASED AIRCRAFT

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STATE	LONG RANGE NAVIGATION EQUIPMENT							OTHER NAVIGATION EQUIPMENT			
	LORAN C	VFR ONLY	IFR NAV	APP	IFR	OMEGA	OTHER LRNAV	RADAR ALTIM	WEATHER RADAR	THUNDER STM DET	NO NAV EQ
<b>WEST VIRGINIA</b>											
ESTIMATED POPULATION	585	508	100	78	4	0	0	87	103	83	139
% STANDARD ERROR	25.6	27.9	61.6	68.0	167.7	0.0	0.0	52.8	47.6	66.6	50.5
% WITH CAPABILITY	46.6	40.5	8.0	6.2	0.3	0.0	0.0	6.9	8.2	6.6	11.1
<b>WISCONSIN</b>											
ESTIMATED POPULATION	2,104	1,493	245	77	24	21	21	240	437	224	1,601
% STANDARD ERROR	13.5	16.3	36.8	68.4	82.9	73.1	73.1	33.2	26.6	38.7	15.0
% WITH CAPABILITY	40.6	28.8	4.7	1.5	0.5	0.4	0.4	4.6	8.4	4.3	30.9
<b>WYOMING</b>											
ESTIMATED POPULATION	313	244	16	7	2	3	3	65	76	24	159
% STANDARD ERROR	33.5	36.9	153.7	222.0	409.4	261.6	261.6	58.9	58.0	106.8	44.5
% WITH CAPABILITY	34.0	26.6	1.7	0.8	0.2	0.3	0.3	7.1	8.3	2.6	17.3
<b>PUERTO RICO</b>											
ESTIMATED POPULATION	44	19	15	4	0	7	7	46	58	63	41
% STANDARD ERROR	89.0	145.5	125.8	190.6	0.0	210.5	210.5	88.2	74.3	62.2	86.3
% WITH CAPABILITY	9.1	4.0	3.2	0.8	0.0	1.4	1.4	9.6	12.1	13.1	8.6
<b>OTHER U.S. TERRITORIES</b>											
ESTIMATED POPULATION	31	21	2	5	4	0	0	5	28	3	5
% STANDARD ERROR	108.8	134.9	469.0	199.5	177.4	0.0	0.0	201.2	104.5	317.7	275.6
% WITH CAPABILITY	28.2	19.7	1.9	4.6	3.6	0.0	0.0	4.7	25.3	2.9	4.9
<b>TOTAL</b>											
ESTIMATED POPULATION	113,863	81,316	13,506	5,268	2,990	1,852	1,852	18,430	22,309	16,275	59,585
% STANDARD ERROR	1.3	1.7	4.8	7.9	5.3	9.3	9.3	2.8	2.2	4.1	1.5
% WITH CAPABILITY	42.8	30.5	5.1	2.0	1.1	0.7	0.7	6.9	8.4	6.1	22.4

NOTE: COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

7.13 1990 GENERAL AVIATION AIRCRAFT WITH GUIDANCE AND CONTROL EQUIPMENT  
BY AIRCRAFT TYPE

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AIRCRAFT TYPE	GUIDANCE AND CONTROL EQUIPMENT										FL DATA REC'D	NO GCE
	FLIGHT DIRECT	EFIS	FL MGT COMPT'R	-----AUTOPILOT-AXIS CONTROLS----- LONGITUDE	VERTICAL	LATERAL	APP	MODE	AUTO LAND			
FIXED WING												
FIXED WING - PISTON												
1 ENG: 1-3 SEATS												
ESTIMATED POPULATION	99	35	98	713	389	652	314		3	276	86,542	
% STANDARD ERROR	59.0	83.7	73.6	23.2	31.7	24.1	36.9		111.1	34.8	0.3	
% WITH CAPABILITY	0.1	0.0	0.1	0.8	0.4	0.7	0.4		0.0	0.3	98.3	
1 ENG: 4+ SEATS												
ESTIMATED POPULATION	6,574	538	796	42,762	21,764	31,709	20,959		214	39	69,112	
% STANDARD ERROR	6.6	27.4	21.7	2.1	3.3	2.7	3.6		40.3	53.8	1.3	
% WITH CAPABILITY	5.5	0.5	0.7	35.8	18.2	26.6	17.6		0.2	0.0	57.9	
1 ENGINE: TOTAL												
ESTIMATED POPULATION	6,673	573	895	43,475	22,152	32,451	21,273		217	315	155,654	
% STANDARD ERROR	6.6	26.3	20.9	2.1	3.3	2.7	3.6		39.8	31.2	0.6	
% WITH CAPABILITY	3.2	0.3	0.4	21.0	10.7	15.6	10.3		0.1	0.2	75.1	
2 ENG: 1-6 SEATS												
ESTIMATED POPULATION	4,304	210	386	13,726	12,709	12,442	9,734		66	42	3,381	
% STANDARD ERROR	6.9	37.5	29.1	2.2	2.6	2.8	3.8		60.3	102.1	8.7	
% WITH CAPABILITY	24.5	1.2	2.2	78.0	72.2	70.7	55.3		0.4	0.2	19.2	
2 ENG: 7+ SEATS												
ESTIMATED POPULATION	3,610	268	470	6,159	6,097	5,771	5,210		104	119	2,593	
% STANDARD ERROR	6.6	35.2	25.9	2.8	2.8	3.4	4.1		61.7	57.2	6.2	
% WITH CAPABILITY	40.6	3.0	5.3	69.3	68.6	64.9	58.6		1.2	1.3	29.2	
2 ENGINE: TOTAL												
ESTIMATED POPULATION	7,914	477	856	19,885	18,806	18,214	14,945		170	160	5,974	
% STANDARD ERROR	4.8	25.7	19.3	1.8	2.0	2.2	2.8		44.4	50.0	5.6	
% WITH CAPABILITY	29.9	1.8	3.2	75.1	71.0	68.8	56.4		0.6	0.6	22.5	
PISTON: OTHER												
ESTIMATED POPULATION	0	0	3	11	11	2	0		0	0	168	
% STANDARD ERROR	0.0	0.0	105.8	141.9	141.9	329.8	0.0		0.0	0.0	9.6	
% WITH CAPABILITY	0.0	0.0	1.4	6.1	6.1	1.2	0.0		0.0	0.0	92.4	
PISTON: TOTAL												
ESTIMATED POPULATION	14,588	1,051	1,753	63,371	40,970	50,667	36,218		386	475	161,796	
% STANDARD ERROR	4.0	18.5	14.3	1.5	2.0	1.9	2.4		29.6	26.7	0.6	
% WITH CAPABILITY	6.2	0.4	0.7	27.1	17.5	21.6	15.5		0.2	0.2	69.1	

7.13 1990 GENERAL AVIATION AIRCRAFT WITH GUIDANCE AND CONTROL EQUIPMENT  
BY AIRCRAFT TYPE

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AIRCRAFT TYPE	GUIDANCE AND CONTROL EQUIPMENT									
	FLIGHT DIRECT	EFIS	FL MGT COMPT	-----AUTOPILOT-AXIS CONTROLS----- LONGITUDE VERTICAL LATERAL APP MODE			AUTO LAND	FL DATA REC'D	NO GCE	
FIXED WING - TURBOPROP										
2 ENG: 1-12 SEATS										
ESTIMATED POPULATION	4,050	423	591	4,262	4,244	4,225	3,960	21	3	284
% STANDARD ERROR	2.4	19.6	15.7	1.8	1.8	1.9	2.6	91.4	210.2	24.0
% WITH CAPABILITY	87.6	9.1	12.8	92.2	91.8	91.4	85.7	0.5	0.1	6.2
2 ENG: 13+ SEATS										
ESTIMATED POPULATION	625	157	53	462	434	461	367	0	113	542
% STANDARD ERROR	10.6	19.2	35.3	12.3	13.1	12.3	13.7	0.0	34.5	12.1
% WITH CAPABILITY	48.5	12.1	4.1	35.9	33.6	35.7	28.5	0.0	8.8	42.0
2 ENGINE: TOTAL										
ESTIMATED POPULATION	4,675	579	645	4,724	4,678	4,685	4,327	21	117	826
% STANDARD ERROR	2.5	15.2	14.7	2.0	2.1	2.1	2.6	91.4	34.1	11.5
% WITH CAPABILITY	79.1	9.8	10.9	79.9	79.1	79.3	73.2	0.4	2.0	14.0
TURBOPROP: OTHER										
ESTIMATED POPULATION	133	0	37	156	154	133	131	0	3	326
% STANDARD ERROR	15.9	0.0	26.6	15.0	15.2	18.0	14.0	0.0	216.6	7.6
% WITH CAPABILITY	26.7	0.0	7.4	31.3	30.8	26.7	26.2	0.0	0.6	65.3
TURBOPROP: TOTAL										
ESTIMATED POPULATION	4,808	579	682	4,881	4,832	4,819	4,458	21	120	1,152
% STANDARD ERROR	2.5	15.2	14.0	2.0	2.1	2.1	2.6	91.4	33.7	8.5
% WITH CAPABILITY	75.0	9.0	10.6	76.1	75.4	75.2	69.5	0.3	1.9	18.0
FIXED WING - TURBOJET										
2 ENGINE TURBOJET										
ESTIMATED POPULATION	4,054	795	1,297	4,073	4,057	4,047	3,936	23	336	190
% STANDARD ERROR	1.5	10.5	8.5	1.4	1.5	1.5	1.8	93.0	19.4	28.4
% WITH CAPABILITY	94.2	18.5	30.1	94.6	94.2	94.0	91.4	0.5	7.8	4.4
TURBOJET: OTHER										
ESTIMATED POPULATION	324	133	183	333	323	333	322	1	95	249
% STANDARD ERROR	10.2	25.7	18.9	9.7	10.2	9.7	9.8	342.1	26.8	13.1
% WITH CAPABILITY	55.4	22.8	31.2	56.8	55.2	56.8	55.0	0.2	16.2	42.5
TURBOJET: TOTAL										
ESTIMATED POPULATION	4,379	928	1,480	4,406	4,380	4,380	4,258	24	431	439
% STANDARD ERROR	1.6	9.7	7.8	1.5	1.5	1.6	1.8	89.9	16.2	14.4
% WITH CAPABILITY	89.5	19.0	30.3	90.1	89.6	89.6	87.1	0.5	8.8	9.0

7.13 1990 GENERAL AVIATION AIRCRAFT WITH GUIDANCE AND CONTROL EQUIPMENT  
BY AIRCRAFT TYPE

PAGE 3 OF 3

AIRCRAFT TYPE	FLIGHT DIRECT	EFIS	FL MGT COMPT	GUIDANCE AND CONTROL EQUIPMENT				AUTO LAND	FL DATA RECORDER	NO GCE
				-----AUTOPILOT-AXIS CONTROLS-----	LONGITUDE	VERTICAL	LATERAL			
FIXED WING: TOTAL	23,775	2,558	3,915	72,658	50,182	59,865	44,934	432	1,025	163,387
ESTIMATED POPULATION	2.5	9.1	7.5	1.3	1.6	1.6	2.0	27.4	14.7	0.6
% STANDARD ERROR	9.7	1.0	1.6	29.6	20.5	24.4	18.3	0.2	0.4	66.6
% WITH CAPABILITY										
ROTORCRAFT										
PISTON	0	0	0	0	0	0	0	11	2	5,789
ESTIMATED POPULATION	0.0	0.0	0.0	0.0	0.0	0.0	0.0	162.5	387.2	0.3
% STANDARD ERROR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	99.8
% WITH CAPABILITY										
TURBINE	510	76	38	603	563	579	433	5	22	3,917
ESTIMATED POPULATION	18.3	43.5	71.6	15.6	16.9	17.0	19.8	200.1	103.2	2.8
% STANDARD ERROR	11.0	1.6	0.8	13.1	12.2	12.5	9.4	0.1	0.5	84.8
% WITH CAPABILITY										
ROTORCRAFT: TOTAL	510	76	38	603	563	579	433	16	24	9,706
ESTIMATED POPULATION	18.3	43.5	71.6	15.6	16.9	17.0	19.8	128.2	100.1	1.1
% STANDARD ERROR	4.9	0.7	0.4	5.8	5.4	5.6	4.2	0.1	0.2	93.1
% WITH CAPABILITY										
OTHER AIRCRAFT	19	1	40	4	8	4	4	0	16	10,483
ESTIMATED POPULATION	65.1	115.6	80.3	245.1	131.7	245.1	245.1	0.0	92.2	0.4
% STANDARD ERROR	0.2	0.0	0.4	0.0	0.1	0.0	0.0	0.0	0.1	99.3
% WITH CAPABILITY										
TOTAL	24,304	2,635	3,993	73,265	50,753	60,448	45,370	447	1,065	183,576
ESTIMATED POPULATION	2.5	8.9	7.4	1.3	1.6	1.6	2.0	26.8	14.4	0.5
% STANDARD ERROR	9.1	1.0	1.5	27.5	19.1	22.7	17.0	0.2	0.4	68.9
% WITH CAPABILITY										

NOTE: COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.



7.14 1990 GENERAL AVIATION AIRCRAFT WITH GUIDANCE AND CONTROL EQUIPMENT  
BY PRIMARY USE

PAGE 1 OF 2

PRIMARY USE	FLIGHT DIRECT	EPIS	FL MGT COMPT	GUIDANCE AND CONTROL EQUIPMENT				AUTO LAND	FL DATA REC'D	NO GCE
				-----AUTOPILOT-AXIS CONTROLS-----	LONGITUDE	VERTICAL	LATERAL			
EXECUTIVE										
ESTIMATED POPULATION	7,872	1,181	1,539	9,207	8,926	8,914	8,516	33	322	1,356
% STANDARD ERROR	3.9	9.5	8.3	3.9	3.9	3.9	3.9	70.5	17.2	15.2
% WITH CAPABILITY	72.2	10.8	14.1	84.5	81.9	81.8	78.1	0.3	3.0	12.4
BUSINESS										
ESTIMATED POPULATION	7,499	490	1,145	22,461	16,634	18,988	15,132	150	165	10,774
% STANDARD ERROR	5.9	22.3	15.6	3.4	3.9	3.8	4.3	46.9	45.4	5.8
% WITH CAPABILITY	21.1	1.4	3.2	63.3	46.9	53.5	42.6	0.4	0.5	30.4
PERSONAL										
ESTIMATED POPULATION	4,756	566	565	29,042	15,646	21,784	13,700	149	192	86,251
% STANDARD ERROR	8.2	25.1	24.6	3.1	4.5	3.7	4.9	47.7	35.2	1.3
% WITH CAPABILITY	3.9	0.5	0.5	24.1	13.0	18.1	11.4	0.1	0.2	71.5
INSTRUCTIONAL										
ESTIMATED POPULATION	183	54	74	2,246	1,179	1,830	1,357	0	77	17,259
% STANDARD ERROR	43.2	83.8	74.3	12.9	17.0	14.3	16.7	0.0	82.1	4.3
% WITH CAPABILITY	0.9	0.3	0.4	11.3	5.9	9.2	6.8	0.0	0.4	86.9
AERIAL APPLICATION										
ESTIMATED POPULATION	113	5	44	177	175	156	164	11	0	6,504
% STANDARD ERROR	46.5	296.6	65.6	41.1	41.3	44.8	43.1	175.1	0.0	3.8
% WITH CAPABILITY	1.7	0.1	0.7	2.6	2.6	2.3	2.4	0.2	0.0	97.1
AERIAL OBSERVATION										
ESTIMATED POPULATION	86	13	1	1,325	658	1,010	767	2	0	3,847
% STANDARD ERROR	59.8	142.7	217.0	17.3	22.5	19.7	23.0	80.5	0.0	9.7
% WITH CAPABILITY	1.6	0.2	0.0	25.0	12.4	19.1	14.5	0.0	0.0	72.7
OTHER WORK USE										
ESTIMATED POPULATION	0	0	0	93	47	91	22	0	0	1,432
% STANDARD ERROR	0.0	0.0	0.0	38.6	40.4	39.4	65.1	0.0	0.0	13.8
% WITH CAPABILITY	0.0	0.0	0.0	6.1	3.1	6.0	1.5	0.0	0.0	93.9
COMPUTER AIR CARRIER										
ESTIMATED POPULATION	238	35	3	247	242	194	168	0	32	873
% STANDARD ERROR	35.4	31.3	115.8	35.0	35.7	39.2	44.5	0.0	35.9	13.8
% WITH CAPABILITY	19.2	2.9	0.3	19.9	19.5	15.7	13.6	0.0	2.6	70.5

7.14 1990 GENERAL AVIATION AIRCRAFT WITH GUIDANCE AND CONTROL EQUIPMENT  
BY PRIMARY USE

PAGE 2 OF 2

PRIMARY USE	GUIDANCE AND CONTROL EQUIPMENT									
	FLIGHT DIRECT	EFIS	FL MGT COMPT	-----AUTOPILOT-AXIS CONTROLS----- LONGITUDE VERTICAL LATERAL APP MODE			AUTO LAND	FL DATA RECORDER	NO GCE	
AIR TAXI										
ESTIMATED POPULATION	1,953	120	278	3,686	3,413	3,478	2,970	0	27	2,289
% STANDARD ERROR	11.2	49.1	31.2	8.6	8.7	8.9	9.7	0.0	92.7	11.4
% WITH CAPABILITY	31.6	1.9	4.5	59.6	55.2	56.3	48.0	0.0	0.4	37.0
OTHER										
ESTIMATED POPULATION	731	113	152	1,017	971	950	759	37	133	3,129
% STANDARD ERROR	15.5	44.8	37.5	14.8	15.1	15.2	16.9	99.2	45.3	10.0
% WITH CAPABILITY	16.8	2.6	3.5	23.4	22.3	21.8	17.4	0.8	3.1	71.9
INACTIVE										
ESTIMATED POPULATION	743	89	240	3,569	2,740	2,853	1,690	66	117	50,055
% STANDARD ERROR	14.8	36.2	35.8	7.2	8.2	7.8	11.1	68.4	37.9	0.5
% WITH CAPABILITY	1.4	0.2	0.4	6.6	5.1	5.3	3.1	0.1	0.2	92.7
TOTAL										
ESTIMATED POPULATION	24,304	2,635	3,993	73,265	50,753	60,448	45,370	447	1,065	183,576
% STANDARD ERROR	2.5	8.9	7.4	1.3	1.6	1.6	2.0	26.8	14.4	0.5
% WITH CAPABILITY	9.1	1.0	1.5	27.5	19.1	22.7	17.0	0.2	0.4	68.9

NOTE: COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

7.15 1990 GENERAL AVIATION AIRCRAFT WITH GUIDANCE AND CONTROL EQUIPMENT  
BY REGION OF BASED AIRCRAFT

PAGE 1 OF 2

REGION	GUIDANCE AND CONTROL EQUIPMENT										FL DATA REC'D	NO GCE
	FLIGHT DIRECT	EFIS	FL MGT COMPT	-----AUTOPILOT-AXIS CONTROLS-----			APP MODE			AUTO LAND		
				LONGITUDE	VERTICAL	LATERAL						
ALASKAN												
ESTIMATED POPULATION	160	3	7	633	385	235	143			0	5	8,003
% STANDARD ERROR	52.3	306.4	160.2	24.4	29.9	37.3	52.0			0.0	117.2	5.9
% WITH CAPABILITY	1.8	0.0	0.1	7.3	4.4	2.7	1.6			0.0	0.1	92.0
CENTRAL												
ESTIMATED POPULATION	1,452	232	278	3,817	2,719	3,427	2,415			2	18	9,889
% STANDARD ERROR	13.5	31.3	32.1	9.5	10.9	9.9	11.7			120.2	78.1	6.0
% WITH CAPABILITY	10.2	1.6	2.0	26.8	19.1	24.1	17.0			0.0	0.1	69.5
EASTERN												
ESTIMATED POPULATION	2,989	507	570	9,216	5,698	7,389	5,630			39	171	19,003
% STANDARD ERROR	9.3	19.6	18.6	6.0	7.4	6.7	7.5			75.0	38.0	4.2
% WITH CAPABILITY	10.1	1.7	1.9	31.2	19.3	25.0	19.0			0.1	0.6	64.3
GREAT LAKES												
ESTIMATED POPULATION	4,033	343	753	12,476	8,399	9,724	7,135			7	75	30,983
% STANDARD ERROR	8.3	23.6	17.6	5.1	6.1	5.8	6.6			175.9	38.4	3.2
% WITH CAPABILITY	9.0	0.8	1.7	27.7	18.6	21.6	15.8			0.0	0.2	68.8
NEW ENGLAND												
ESTIMATED POPULATION	867	78	67	2,482	1,600	1,991	1,571			3	30	6,985
% STANDARD ERROR	19.2	45.0	46.9	12.1	14.9	13.4	14.9			212.1	80.5	7.3
% WITH CAPABILITY	8.9	0.8	0.7	25.3	16.3	20.3	16.0			0.0	0.3	71.3
NORTHWEST MOUNTAIN												
ESTIMATED POPULATION	1,633	168	266	5,690	3,981	5,191	3,486			21	31	19,027
% STANDARD ERROR	13.5	43.1	31.3	7.9	9.3	8.3	9.9			117.6	56.6	4.2
% WITH CAPABILITY	6.4	0.7	1.0	22.2	15.5	20.2	13.4			0.1	0.1	74.2
SOUTHERN												
ESTIMATED POPULATION	4,573	396	682	14,689	10,741	12,227	10,061			153	160	25,427
% STANDARD ERROR	7.3	25.9	18.7	4.6	5.2	5.0	5.5			49.0	33.1	3.6
% WITH CAPABILITY	11.0	1.0	1.6	35.2	25.8	29.3	24.1			0.4	0.4	61.0
SOUTHWESTERN												
ESTIMATED POPULATION	3,660	223	458	10,046	7,499	8,491	6,455			156	130	22,347
% STANDARD ERROR	8.3	26.6	21.0	5.6	6.3	6.1	6.9			47.0	31.7	3.9
% WITH CAPABILITY	11.0	0.7	1.4	30.3	22.6	25.6	19.5			0.5	0.4	67.4

7.15 1990 GENERAL AVIATION AIRCRAFT WITH GUIDANCE AND CONTROL EQUIPMENT  
BY REGION OF BASED AIRCRAFT

PAGE 2 OF 2

REGION	GUIDANCE AND CONTROL EQUIPMENT									
	FLIGHT DIRECT	EFIS	FL MGT COMPT	LONGITUDE	VERTICAL	LATERAL	APP MODE	AUTO LAND	FL DATA REC'D	NO GCE
WESTERN-PACIFIC ESTIMATED POPULATION & STANDARD ERROR & WITH CAPABILITY	4,169	585	864	12,525	8,564	10,302	7,323	61	316	31,115
	8.0	21.1	18.0	5.0	5.8	5.5	6.5	66.6	29.7	3.2
	9.1	1.3	1.9	27.5	18.8	22.6	16.1	0.1	0.7	68.2
TOTAL ESTIMATED POPULATION & STANDARD ERROR & WITH CAPABILITY	24,304	2,635	3,993	73,265	50,753	60,448	45,370	447	1,065	183,576
	2.5	8.9	7.4	1.3	1.6	1.6	2.0	26.8	14.4	0.5
	9.1	1.0	1.5	27.5	19.1	22.7	17.0	0.2	0.4	68.9

NOTE: COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

7.16 1990 GENERAL AVIATION AIRCRAFT WITH GUIDANCE AND CONTROL EQUIPMENT  
BY STATE OF BASED AIRCRAFT

PAGE 1 OF 7

STATE	FLIGHT DIRECT	EFIS	FL MGT COMPT	GUIDANCE AND CONTROL EQUIPMENT			AUTO LAND	FL DATA RECORDER	NO GCE
				-----AUTOPILOT-AXIS CONTROLS-----	LONGITUDE	LATERAL APP MODE			
ALABAMA									
ESTIMATED POPULATION	463	68	16	1,409	997	1,145	982		2,413
% STANDARD ERROR	23.4	74.0	73.8	16.2	19.1	17.6	19.1	6	12.6
% WITH CAPABILITY	11.6	1.7	0.4	35.2	24.9	28.6	24.6	107.8	60.3
ALASKA									
ESTIMATED POPULATION	160	3	7	633	385	235	143	5	9,003
% STANDARD ERROR	52.3	306.4	160.2	24.4	29.9	37.3	52.0	117.2	5.9
% WITH CAPABILITY	1.8	0.0	0.1	7.3	4.4	2.7	1.6	0.1	92.0
ARIZONA									
ESTIMATED POPULATION	331	11	44	1,871	1,101	1,538	1,039	52	4,451
% STANDARD ERROR	26.9	107.1	74.2	13.6	16.9	14.6	17.7	81.2	9.1
% WITH CAPABILITY	5.0	0.2	0.7	28.4	16.7	23.3	15.8	0.8	67.5
ARKANSAS									
ESTIMATED POPULATION	221	43	28	801	616	759	527	15	1,932
% STANDARD ERROR	32.7	54.6	76.3	20.6	22.7	21.4	24.2	112.4	13.6
% WITH CAPABILITY	7.8	1.5	1.0	28.3	21.8	26.8	18.6	0.5	68.3
CALIFORNIA									
ESTIMATED POPULATION	3,576	540	799	10,000	6,927	8,070	5,914	206	24,449
% STANDARD ERROR	8.8	22.2	18.9	5.7	6.6	6.3	7.3	36.4	3.7
% WITH CAPABILITY	9.9	1.5	2.2	27.8	19.2	22.4	16.4	0.6	67.9
COLORADO									
ESTIMATED POPULATION	292	67	44	1,292	948	1,310	830	1	3,519
% STANDARD ERROR	32.4	74.4	61.7	17.1	19.8	17.2	21.3	361.9	10.2
% WITH CAPABILITY	5.8	1.3	0.9	25.7	18.8	26.0	16.5	0.0	69.9
CONNECTICUT									
ESTIMATED POPULATION	269	65	32	743	541	737	539	16	1,379
% STANDARD ERROR	34.3	48.9	60.2	22.3	25.9	22.8	26.3	85.0	16.4
% WITH CAPABILITY	12.2	2.9	1.4	33.8	24.6	33.5	24.5	0.7	62.6
DELAWARE									
ESTIMATED POPULATION	352	22	63	629	584	576	480	0	602
% STANDARD ERROR	29.8	77.4	60.0	23.4	23.9	23.8	26.4	0.0	25.2
% WITH CAPABILITY	25.9	1.6	4.7	46.4	43.1	42.4	35.4	0.0	44.4

7.16 1990 GENERAL AVIATION AIRCRAFT WITH GUIDANCE AND CONTROL EQUIPMENT  
BY STATE OF BASED AIRCRAFT

PAGE 2 OF 7

STATE	FLIGHT DIRECT	EFIS	FL MGT COMETR	GUIDANCE AND CONTROL EQUIPMENT				AUTO LAND	FL DATA REC'D	NO GCE
				-----	-----	-----	-----			
				LONGITUDE	VERTICAL	LATERAL	APP MODE			
DISTRICT OF COLUMBIA										
ESTIMATED POPULATION	6	6	6	6	6	6	4	0	4	7
% STANDARD ERROR	176.4	176.4	176.4	176.4	176.4	176.4	177.9	0.0	177.9	107.8
% WITH CAPABILITY	45.8	45.8	45.8	45.8	45.8	45.8	29.4	0.0	29.4	54.2
FLORIDA										
ESTIMATED POPULATION	1,603	153	381	5,955	4,575	4,978	4,164	83	60	9,570
% STANDARD ERROR	13.4	42.9	25.7	7.6	8.6	8.3	9.2	69.2	55.3	6.2
% WITH CAPABILITY	10.0	1.0	2.4	37.2	28.6	31.1	26.0	0.5	0.4	59.8
GEORGIA										
ESTIMATED POPULATION	659	56	67	2,017	1,394	1,733	1,576	58	5	3,157
% STANDARD ERROR	19.5	62.4	63.5	13.3	15.1	14.0	14.9	78.0	129.0	10.9
% WITH CAPABILITY	12.3	1.0	1.2	37.5	25.9	32.2	29.3	1.1	0.1	58.7
HAWAII										
ESTIMATED POPULATION	16	7	5	50	47	46	36	0	3	548
% STANDARD ERROR	100.6	152.5	190.8	74.4	69.5	72.1	77.0	0.0	218.9	26.1
% WITH CAPABILITY	2.7	1.1	0.9	8.2	7.7	7.5	5.9	0.0	0.4	89.9
IDAHO										
ESTIMATED POPULATION	198	11	43	599	380	578	307	0	3	1,320
% STANDARD ERROR	38.2	116.1	64.2	25.3	30.4	25.6	33.1	0.0	111.1	16.4
% WITH CAPABILITY	9.8	0.5	2.1	29.6	18.8	28.6	15.2	0.0	0.2	65.3
ILLINOIS										
ESTIMATED POPULATION	988	111	218	2,511	1,793	2,153	1,515	0	22	5,253
% STANDARD ERROR	17.3	47.5	32.9	11.8	13.7	12.8	15.1	0.0	61.0	8.5
% WITH CAPABILITY	12.2	1.4	2.7	31.0	22.2	26.6	18.7	0.0	0.3	64.9
INDIANA										
ESTIMATED POPULATION	400	42	101	1,532	876	1,034	881	4	6	2,832
% STANDARD ERROR	25.7	57.7	45.5	15.6	19.6	18.2	19.3	248.4	204.9	11.4
% WITH CAPABILITY	8.7	0.9	2.2	33.3	19.0	22.4	19.1	0.1	0.1	61.5
IOWA										
ESTIMATED POPULATION	347	12	12	928	538	721	560	0	5	2,166
% STANDARD ERROR	25.2	97.9	100.7	20.2	24.9	22.3	25.4	0.0	90.7	13.2
% WITH CAPABILITY	10.7	0.4	0.4	28.6	16.6	22.3	17.3	0.0	0.1	66.9

7.16 1990 GENERAL AVIATION AIRCRAFT WITH GUIDANCE AND CONTROL EQUIPMENT  
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STATE	GUIDANCE AND CONTROL EQUIPMENT									
	FLIGHT DIRECT	EFIS	FL MGT COMPTR	-----AUTOPILOT-AXIS CONTROLS-----			AUTO LAND	FL DATA REC'DR	NO GCE	
				LONGITUDE	VERTICAL	LATERAL	APP MODE			
KANSAS										
ESTIMATED POPULATION	421	87	81	1,068	740	1,029	720	0	2,791	
% STANDARD ERROR	26.0	45.3	59.6	17.9	20.8	18.1	21.0	0.0	11.6	
% WITH CAPABILITY	10.6	2.2	2.0	26.7	18.5	25.8	18.0	0.0	69.9	
KENTUCKY										
ESTIMATED POPULATION	150	13	20	506	437	415	275	1	1,319	
% STANDARD ERROR	36.4	121.9	66.4	26.7	28.3	28.8	32.3	71.9	17.2	
% WITH CAPABILITY	8.0	0.7	1.0	27.1	23.3	22.2	14.7	0.4	70.5	
LOUISIANA										
ESTIMATED POPULATION	416	8	48	1,092	759	772	706	41	2,691	
% STANDARD ERROR	25.6	92.2	84.2	17.9	20.5	20.7	21.4	0.0	11.6	
% WITH CAPABILITY	10.9	0.2	1.3	28.6	19.9	20.2	18.5	1.1	70.4	
MAINE										
ESTIMATED POPULATION	72	0	2	313	229	191	111	0	1,491	
% STANDARD ERROR	75.0	0.0	181.1	36.6	42.5	46.2	57.7	0.0	16.2	
% WITH CAPABILITY	3.9	0.0	0.1	17.2	12.6	10.5	6.1	0.0	81.7	
MARYLAND										
ESTIMATED POPULATION	325	14	12	1,314	707	1,034	732	9	2,014	
% STANDARD ERROR	29.0	100.5	146.8	17.0	22.1	19.1	22.2	151.3	13.8	
% WITH CAPABILITY	9.4	0.4	0.3	38.1	20.5	30.0	21.2	0.3	58.4	
MASSACHUSETTS										
ESTIMATED POPULATION	318	12	20	872	546	690	617	5	2,277	
% STANDARD ERROR	30.8	115.3	94.5	20.2	25.4	22.0	23.4	149.4	13.2	
% WITH CAPABILITY	9.6	0.3	0.6	26.3	16.5	20.8	18.6	0.2	68.6	
MICHIGAN										
ESTIMATED POPULATION	610	56	182	2,459	1,695	1,874	1,365	1	6,161	
% STANDARD ERROR	21.1	49.1	36.1	12.2	14.3	13.7	15.8	36	7.7	
% WITH CAPABILITY	6.9	0.6	2.1	27.8	19.1	21.1	15.4	0.4	69.5	
MINNESOTA										
ESTIMATED POPULATION	384	33	42	1,384	992	919	741	1	4,698	
% STANDARD ERROR	27.9	74.0	55.5	16.4	19.0	19.6	21.5	6	8.6	
% WITH CAPABILITY	6.2	0.5	0.7	22.3	16.0	14.8	12.0	100.3	75.9	

7.16 1990 GENERAL AVIATION AIRCRAFT WITH GUIDANCE AND CONTROL EQUIPMENT  
BY STATE OF BASED AIRCRAFT

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STATE	GUIDANCE AND CONTROL EQUIPMENT										FL DATA REC'D	NO CCE
	FLIGHT DIRECT	EFIS	FL MGT COMPT	-----AUTOPILOT-AXIS CONTROLS-----			LONGITUDE VERTICAL LATERAL APP MODE			AUTO LAND		
MISSISSIPPI ESTIMATED POPULATION & STANDARD ERROR & WITH CAPABILITY	152	2	2	644	356	476	423	0	8	1,343		
	42.6	326.0	326.0	24.2	30.1	27.9	29.1	0.0	188.8	16.6		
	7.6	0.1	0.1	32.0	17.7	23.7	21.0	0.0	0.4	66.8		
MISSOURI ESTIMATED POPULATION & STANDARD ERROR & WITH CAPABILITY	496	117	151	1,220	1,009	1,104	819	2	12	3,477		
	24.2	48.8	43.4	17.1	18.5	17.8	20.5	120.2	106.5	10.3		
	10.2	2.4	3.1	25.0	20.7	22.6	16.8	0.0	0.2	71.3		
MONTANA ESTIMATED POPULATION & STANDARD ERROR & WITH CAPABILITY	116	16	25	360	275	312	181	0	0	1,920		
	52.7	137.6	99.4	31.6	36.2	34.0	43.2	0.0	0.0	13.9		
	4.9	0.7	1.1	15.2	11.6	13.2	7.7	0.0	0.0	81.2		
NEBRASKA ESTIMATED POPULATION & STANDARD ERROR & WITH CAPABILITY	187	16	34	602	432	573	315	0	1	1,454		
	38.1	112.6	102.8	23.8	27.4	24.4	31.5	0.0	311.1	15.1		
	8.9	0.8	1.6	28.5	20.4	27.1	14.9	0.0	0.1	68.7		
NEVADA ESTIMATED POPULATION & STANDARD ERROR & WITH CAPABILITY	246	27	16	604	490	649	334	0	56	1,666		
	34.5	93.3	116.6	23.8	25.8	23.3	31.0	0.0	67.7	14.6		
	10.2	1.1	0.7	25.0	20.3	26.8	13.8	0.0	2.3	68.9		
NEW HAMPSHIRE ESTIMATED POPULATION & STANDARD ERROR & WITH CAPABILITY	117	2	10	316	148	221	152	0	8	1,083		
	49.4	440.0	127.4	32.5	43.1	39.4	42.4	0.0	221.7	17.7		
	8.2	0.1	0.7	22.0	10.3	15.4	10.6	0.0	0.5	75.5		
NEW JERSEY ESTIMATED POPULATION & STANDARD ERROR & WITH CAPABILITY	373	82	114	1,477	869	1,220	820	20	92	2,562		
	26.0	57.1	43.9	15.2	19.3	16.8	19.2	106.6	55.2	12.0		
	8.6	1.9	2.6	34.1	20.1	28.2	18.9	0.5	2.1	59.2		
NEW MEXICO ESTIMATED POPULATION & STANDARD ERROR & WITH CAPABILITY	177	13	14	567	384	452	347	19	4	2,037		
	42.3	118.8	157.0	25.1	29.1	27.6	31.1	112.5	257.9	12.8		
	6.8	0.5	0.5	21.7	14.7	17.3	13.3	0.0	0.1	77.9		



7.16 1990 GENERAL AVIATION AIRCRAFT WITH GUIDANCE AND CONTROL EQUIPMENT  
BY STATE OF BASED AIRCRAFT

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STATE	GUIDANCE AND CONTROL EQUIPMENT										FL DATA REC'D	NO GCE
	FLIGHT DIRECT	EFIS	FL MGT COMPT	LONGITUDE	VERTICAL	AUTOPILOT-AXIS CONTROLS	LATERAL	APP	MODE	AUTO LAND		
NEW YORK												
ESTIMATED POPULATION	670	272	209	2,144	1,328	1,647	1,162			6	5	5,471
% STANDARD ERROR	20.1	29.0	27.0	12.8	15.4	14.6	16.8			167.0	169.9	8.2
% WITH CAPABILITY	8.5	3.4	2.6	27.1	16.8	20.8	14.7			0.1	0.1	69.1
NORTH CAROLINA												
ESTIMATED POPULATION	686	41	94	1,897	1,178	1,470	1,315			0	70	3,194
% STANDARD ERROR	21.3	65.5	54.5	14.0	16.9	15.6	16.4			0.0	54.6	10.8
% WITH CAPABILITY	12.7	0.8	1.7	35.2	21.9	27.3	24.4			0.0	1.3	59.3
NORTH DAKOTA												
ESTIMATED POPULATION	73	0	33	261	106	183	108			0	0	1,450
% STANDARD ERROR	66.7	0.0	119.4	38.0	58.3	44.5	54.5			0.0	0.0	15.8
% WITH CAPABILITY	4.0	0.0	1.8	14.4	5.8	10.1	5.9			0.0	0.0	79.8
OHIO												
ESTIMATED POPULATION	1,061	77	97	2,882	1,895	2,553	1,651			0	0	5,660
% STANDARD ERROR	16.7	49.4	37.8	11.1	13.2	11.6	13.8			0.0	0.0	8.1
% WITH CAPABILITY	11.8	0.9	1.1	32.2	21.1	28.5	18.4			0.0	0.0	63.1
OKLAHOMA												
ESTIMATED POPULATION	559	43	79	1,384	1,008	1,261	907			0	8	2,937
% STANDARD ERROR	23.0	77.4	65.1	16.2	18.2	16.7	18.8			0.0	77.6	11.5
% WITH CAPABILITY	12.4	1.0	1.8	30.8	22.4	28.0	20.2			0.0	0.2	65.3
OREGON												
ESTIMATED POPULATION	540	34	73	1,444	1,060	1,580	965			0	11	3,977
% STANDARD ERROR	23.9	84.1	58.8	15.8	18.1	15.3	18.9			0.0	80.4	9.7
% WITH CAPABILITY	9.3	0.6	1.3	25.0	18.3	27.3	16.7			0.0	0.2	68.7
PENNSYLVANIA												
ESTIMATED POPULATION	768	33	91	2,183	1,226	1,681	1,530			3	32	5,132
% STANDARD ERROR	19.0	58.5	57.3	12.9	16.5	14.8	15.4			99.8	92.6	8.2
% WITH CAPABILITY	10.1	0.4	1.2	28.8	16.2	22.2	20.2			0.0	0.4	67.6
RHODE ISLAND												
ESTIMATED POPULATION	49	0	0	109	61	56	68			0	1	259
% STANDARD ERROR	92.0	0.0	0.0	60.0	80.1	79.4	76.5			0.0	466.9	38.3
% WITH CAPABILITY	12.6	0.0	0.0	28.5	15.8	14.5	17.6			0.0	0.4	67.4

7.16 1990 GENERAL AVIATION AIRCRAFT WITH GUIDANCE AND CONTROL EQUIPMENT  
BY STATE OF BASED AIRCRAFT

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STATE	GUIDANCE AND CONTROL EQUIPMENT										FL DATA REC'D	NO GCE
	FLIGHT DIRECT	EPIS	FL MGT COMPT	-----AUTOPILOT-AXIS CONTROLS-----			APP MODE			AUTO LAND		
				LONGITUDE	VERTICAL	LATERAL						
SOUTH CAROLINA ESTIMATED POPULATION & STANDARD ERROR & WITH CAPABILITY	229	35	30	648	514	679	391			1	4	1,507
	32.2	88.8	95.1	22.8	25.0	22.6	28.7			191.4	153.8	15.6
	9.7	1.5	1.3	27.4	21.8	28.7	16.5			0.0	0.2	63.8
SOUTH DAKOTA ESTIMATED POPULATION & STANDARD ERROR & WITH CAPABILITY	99	7	2	285	168	153	125			0	3	1,032
	60.9	206.8	252.0	36.2	46.5	47.0	53.0			0.0	229.0	18.2
	7.3	0.5	0.1	21.1	12.4	11.3	9.3			0.0	0.3	76.4
TENNESSEE ESTIMATED POPULATION & STANDARD ERROR & WITH CAPABILITY	565	16	70	1,486	1,176	1,211	845			7	5	2,479
	19.4	85.1	49.6	15.1	16.4	16.1	18.2			204.3	189.3	12.6
	13.8	0.4	1.7	36.2	28.7	29.5	20.6			0.2	0.1	60.5
TEXAS ESTIMATED POPULATION & STANDARD ERROR & WITH CAPABILITY	2,287	116	289	6,203	4,732	5,247	3,968			44	103	12,751
	10.6	34.9	22.2	7.2	8.0	7.8	9.0			87.2	35.2	5.3
	11.8	0.6	1.5	31.9	24.4	27.0	20.4			0.2	0.5	65.7
UTAH ESTIMATED POPULATION & STANDARD ERROR & WITH CAPABILITY	209	4	19	498	307	384	220			0	14	1,108
	36.6	216.8	130.8	27.0	32.8	29.5	35.0			0.0	94.3	19.3
	12.7	0.2	1.2	30.3	18.7	23.4	13.4			0.0	0.9	67.5
VERMONT ESTIMATED POPULATION & STANDARD ERROR & WITH CAPABILITY	43	0	4	127	74	97	84			0	0	495
	99.4	0.0	262.0	54.0	72.0	62.7	67.8			0.0	0.0	26.8
	6.7	0.0	0.6	20.0	11.7	15.2	13.2			0.0	0.0	77.9
VIRGINIA ESTIMATED POPULATION & STANDARD ERROR & WITH CAPABILITY	376	66	61	1,052	632	875	607			11	26	2,459
	25.0	35.9	54.5	17.6	21.7	19.1	21.4			162.5	69.2	12.4
	10.3	1.8	1.7	28.8	17.3	23.9	16.6			0.3	0.7	67.3
WASHINGTON ESTIMATED POPULATION & STANDARD ERROR & WITH CAPABILITY	208	34	43	1,242	856	863	874			17	1	6,534
	40.5	99.9	99.4	17.3	20.7	20.3	20.7			136.0	301.0	7.5
	2.6	0.4	0.5	15.7	10.8	10.9	11.1			0.2	0.0	82.8

7.16 1990 GENERAL AVIATION AIRCRAFT WITH GUIDANCE AND CONTROL EQUIPMENT  
BY STATE OF BASED AIRCRAFT

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STATE	FLIGHT DIRECT	EFIS	FL MGT COMPT	GUIDANCE AND CONTROL EQUIPMENT				AUTO LAND	FL DATA REC'D	NO GCE
				-----AUTOPILOT-AXIS CONTROLS-----	LONGITUDE	VERTICAL	LATERAL			
WEST VIRGINIA ESTIMATED POPULATION & STANDARD ERROR & WITH CAPABILITY	120	12	14	409	345	349	296	0	2	756
	47.3	158.7	136.1	30.3	33.0	31.8	35.6	0.0	617.1	23.1
	9.5	1.0	1.1	32.6	27.5	27.8	23.6	0.0	0.1	60.2
WISCONSIN ESTIMATED POPULATION & STANDARD ERROR & WITH CAPABILITY	419	17	79	1,162	874	856	749	0	2	3,896
	27.4	104.7	67.0	18.0	20.4	20.7	22.0	0.0	263.6	9.9
	8.1	0.3	1.5	22.4	16.9	16.5	14.5	0.0	0.0	75.2
WYOMING ESTIMATED POPULATION & STANDARD ERROR & WITH CAPABILITY	70	1	18	256	157	164	109	0	0	648
	60.7	368.5	122.6	37.4	47.2	46.7	51.9	0.0	0.0	23.5
	7.6	0.1	2.0	27.8	17.1	17.8	11.8	0.0	0.0	70.5
PUERTO RICO ESTIMATED POPULATION & STANDARD ERROR & WITH CAPABILITY	56	12	2	96	85	92	66	0	1	372
	80.1	158.5	304.0	60.5	63.1	61.5	73.6	0.0	531.4	31.7
	11.6	2.5	0.5	20.0	17.7	19.2	13.7	0.0	0.2	77.4
OTHER U.S. TERRITORIES ESTIMATED POPULATION & STANDARD ERROR & WITH CAPABILITY	11	0	0	31	29	28	25	0	0	74
	150.4	0.0	0.0	103.6	105.9	109.6	116.9	0.0	0.0	74.9
	10.0	0.0	0.0	28.7	26.8	25.8	22.6	0.0	0.0	67.9
TOTAL	24,304	2,635	3,993	73,265	50,753	60,448	45,370	447	1,065	183,576
ESTIMATED POPULATION	2.5	8.9	7.4	1.3	1.6	1.6	2.0	26.8	14.4	0.5
STANDARD ERROR	9.1	1.0	1.5	27.5	19.1	22.7	17.0	0.2	0.4	68.9
WITH CAPABILITY										

NOTE: COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

7.17 1990 GENERAL AVIATION AIRCRAFT EQUIPPED WITH AN ELECTRICAL SYSTEM AND/OR HAS AN EMERGENCY LOCATOR TRANSMITTER  
BY AIRCRAFT TYPE

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AIRCRAFT TYPE	ELECTRICAL SYSTEM	EMERGENCY LOCATOR TRANSMITTER
FIXED WING		
FIXED WING - PISTON		
1 ENG: 1-3 SEATS ESTIMATED POPULATION & STANDARD ERROR & WITH CAPABILITY	59,324 1.1 67.4	60,980 1.1 69.3
1 ENG: 4+ SEATS ESTIMATED POPULATION & STANDARD ERROR & WITH CAPABILITY	115,186 0.3 96.5	111,584 0.5 93.5
1 ENGINE: TOTAL ESTIMATED POPULATION & STANDARD ERROR & WITH CAPABILITY	174,510 0.4 84.1	172,564 0.5 83.2
2 ENG: 1-6 SEATS ESTIMATED POPULATION & STANDARD ERROR & WITH CAPABILITY	16,964 0.8 96.4	16,429 1.1 93.3
2 ENG: 7+ SEATS ESTIMATED POPULATION & STANDARD ERROR & WITH CAPABILITY	8,190 1.7 92.1	7,592 2.3 85.4
2 ENGINE: TOTAL ESTIMATED POPULATION & STANDARD ERROR & WITH CAPABILITY	25,154 0.8 94.9	24,020 1.1 90.7
PISTON: OTHER		
ESTIMATED POPULATION & STANDARD ERROR & WITH CAPABILITY	97 27.7 53.3	106 26.6 58.3
PISTON: TOTAL ESTIMATED POPULATION & STANDARD ERROR & WITH CAPABILITY	199,761 0.4 85.3	196,690 0.5 84.0

7.17 1990 GENERAL AVIATION AIRCRAFT EQUIPPED WITH AN ELECTRICAL SYSTEM AND/OR HAS AN EMERGENCY LOCATOR TRANSMITTER  
BY AIRCRAFT TYPE

PAGE 2 OF 3

AIRCRAFT TYPE	ELECTRICAL SYSTEM	EMERGENCY LOCATOR TRANSMITTER
FIXED WING - TURBOPROP		
2 ENG: 1-12 SEATS		
ESTIMATED POPULATION	4,414	4,245
% STANDARD ERROR	1.4	1.9
% WITH CAPABILITY	95.5	91.8
2 ENG: 13+ SEATS		
ESTIMATED POPULATION	1,240	1,211
% STANDARD ERROR	1.6	1.9
% WITH CAPABILITY	96.2	93.9
2 ENGINE: TOTAL		
ESTIMATED POPULATION	5,654	5,455
% STANDARD ERROR	1.2	1.5
% WITH CAPABILITY	95.6	92.3
TURBOPROP: OTHER		
ESTIMATED POPULATION	429	239
% STANDARD ERROR	6.5	11.0
% WITH CAPABILITY	86.0	47.9
TURBOPROP: TOTAL		
ESTIMATED POPULATION	6,083	5,694
% STANDARD ERROR	1.2	1.5
% WITH CAPABILITY	94.9	88.8
FIXED WING - TURBOJET		
2 ENGINE TURBOJET		
ESTIMATED POPULATION	4,187	2,449
% STANDARD ERROR	1.0	5.3
% WITH CAPABILITY	97.3	56.9
TURBOJET: OTHER		
ESTIMATED POPULATION	485	241
% STANDARD ERROR	6.3	15.1
% WITH CAPABILITY	82.8	41.2
TURBOJET: TOTAL		
ESTIMATED POPULATION	4,672	2,690
% STANDARD ERROR	1.1	5.0
% WITH CAPABILITY	95.5	55.0

7.17 1990 GENERAL AVIATION AIRCRAFT EQUIPPED WITH AN ELECTRICAL SYSTEM AND/OR HAS AN EMERGENCY LOCATOR TRANSMITTER  
BY AIRCRAFT TYPE

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AIRCRAFT TYPE	ELECTRICAL SYSTEM	EMERGENCY LOCATOR TRANSMITTER
FIXED WING: TOTAL		
ESTIMATED POPULATION	210,516	205,075
% STANDARD ERROR	0.4	0.4
% WITH CAPABILITY	85.8	83.6
ROTORCRAFT		
PISTON		
ESTIMATED POPULATION	3,927	975
% STANDARD ERROR	4.2	15.2
% WITH CAPABILITY	67.7	16.8
TURBINE		
ESTIMATED POPULATION	4,345	3,270
% STANDARD ERROR	1.7	5.6
% WITH CAPABILITY	94.0	70.8
ROTORCRAFT: TOTAL		
ESTIMATED POPULATION	8,272	4,245
% STANDARD ERROR	2.2	5.5
% WITH CAPABILITY	79.4	40.7
OTHER AIRCRAFT		
ESTIMATED POPULATION	1,585	237
% STANDARD ERROR	9.3	27.5
% WITH CAPABILITY	15.0	2.2
TOTAL		
ESTIMATED POPULATION	220,373	209,558
% STANDARD ERROR	0.4	0.5
% WITH CAPABILITY	82.7	78.7

NOTE: COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

7.18 1990 GENERAL AVIATION AIRCRAFT EQUIPPED WITH AN ELECTRICAL SYSTEM AND/OR HAS AN EMERGENCY LOCATOR TRANSMITTER  
BY PRIMARY USE

PAGE 1 OF 2

PRIMARY USE	ELECTRICAL SYSTEM	EMERGENCY LOCATOR TRANSMITTER
EXECUTIVE		
ESTIMATED POPULATION	10,684	8,930
% STANDARD ERROR	3.9	4.6
% WITH CAPABILITY	98.0	81.9
BUSINESS		
ESTIMATED POPULATION	34,618	33,694
% STANDARD ERROR	2.8	2.9
% WITH CAPABILITY	97.5	94.9
PERSONAL		
ESTIMATED POPULATION	104,712	105,097
% STANDARD ERROR	1.2	1.2
% WITH CAPABILITY	86.8	87.1
INSTRUCTIONAL		
ESTIMATED POPULATION	18,436	17,661
% STANDARD ERROR	4.3	4.4
% WITH CAPABILITY	92.9	89.0
AERIAL APPLICATION		
ESTIMATED POPULATION	5,184	1,030
% STANDARD ERROR	5.5	16.6
% WITH CAPABILITY	77.4	15.4
AERIAL OBSERVATION		
ESTIMATED POPULATION	4,731	4,280
% STANDARD ERROR	9.0	9.6
% WITH CAPABILITY	89.4	80.9
OTHER WORK USE		
ESTIMATED POPULATION	1,117	843
% STANDARD ERROR	16.2	19.2
% WITH CAPABILITY	73.2	55.3
COMPUTER AIR CARRIER		
ESTIMATED POPULATION	1,184	1,223
% STANDARD ERROR	12.5	12.1
% WITH CAPABILITY	95.6	98.7

7.18 1990 GENERAL AVIATION AIRCRAFT EQUIPPED WITH AN ELECTRICAL SYSTEM AND/OR HAS AN EMERGENCY LOCATOR TRANSMITTER  
BY PRIMARY USE

PAGE 2 OF 2

PRIMARY USE	ELECTRICAL SYSTEM	EMERGENCY LOCATOR TRANSMITTER
AIR TAXI		
ESTIMATED POPULATION	5,925	5,316
% STANDARD ERROR	6.7	7.3
% WITH CAPABILITY	95.8	86.0
OTHER		
ESTIMATED POPULATION	3,580	3,080
% STANDARD ERROR	8.9	9.6
% WITH CAPABILITY	82.3	70.8
INACTIVE		
ESTIMATED POPULATION	29,627	27,641
% STANDARD ERROR	1.9	2.2
% WITH CAPABILITY	54.9	51.2
TOTAL		
ESTIMATED POPULATION	220,373	209,558
% STANDARD ERROR	0.4	0.5
% WITH CAPABILITY	82.7	78.7

NOTE: COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.



7.19 1990 GENERAL AVIATION AIRCRAFT EQUIPPED WITH AN ELECTRICAL SYSTEM AND/OR HAS AN EMERGENCY LOCATOR TRANSMITTER  
BY REGION OF BASED AIRCRAFT

PAGE 1 OF 2

REGION	ELECTRICAL SYSTEM	EMERGENCY LOCATOR TRANSMITTER
ALASKAN		
ESTIMATED POPULATION	7,757	8,050
% STANDARD ERROR	6.2	6.0
% WITH CAPABILITY	89.2	92.6
CENTRAL		
ESTIMATED POPULATION	11,378	10,830
% STANDARD ERROR	5.6	5.8
% WITH CAPABILITY	80.0	76.1
EASTERN		
ESTIMATED POPULATION	24,900	24,177
% STANDARD ERROR	3.7	3.8
% WITH CAPABILITY	84.2	81.8
GREAT LAKES		
ESTIMATED POPULATION	36,404	35,949
% STANDARD ERROR	3.0	3.0
% WITH CAPABILITY	80.8	79.8
NEW ENGLAND		
ESTIMATED POPULATION	8,350	7,904
% STANDARD ERROR	6.7	6.9
% WITH CAPABILITY	85.2	80.6
NORTHWEST MOUNTAIN		
ESTIMATED POPULATION	21,691	20,199
% STANDARD ERROR	4.0	4.2
% WITH CAPABILITY	84.5	78.7
SOUTHERN		
ESTIMATED POPULATION	36,261	33,780
% STANDARD ERROR	3.0	3.1
% WITH CAPABILITY	87.0	81.0
SOUTHWESTERN		
ESTIMATED POPULATION	27,921	25,689
% STANDARD ERROR	3.4	3.6
% WITH CAPABILITY	84.2	77.4

7.19 1990 GENERAL AVIATION AIRCRAFT EQUIPPED WITH AN ELECTRICAL SYSTEM AND/OR HAS AN EMERGENCY LOCATOR TRANSMITTER  
BY REGION OF BASED AIRCRAFT

PAGE 2 OF 2

REGION	ELECTRICAL SYSTEM	EMERGENCY LOCATOR TRANSMITTER
WESTERN-PACIFIC		
ESTIMATED POPULATION	39,203	36,752
% STANDARD ERROR	2.8	2.9
% WITH CAPABILITY	86.0	80.6
TOTAL		
ESTIMATED POPULATION	220,373	209,558
% STANDARD ERROR	0.4	0.5
% WITH CAPABILITY	82.7	78.7

NOTE: COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

7.20 1990 GENERAL AVIATION AIRCRAFT EQUIPPED WITH AN ELECTRICAL SYSTEM AND/OR HAS AN EMERGENCY LOCATOR TRANSMITTER  
BY STATE OF BASED AIRCRAFT

PAGE 1 OF 7

STATE	ELECTRICAL SYSTEM	EMERGENCY LOCATOR TRANSMITTER
ALABAMA		
ESTIMATED POPULATION	3,721	3,340
% STANDARD ERROR	10.3	11.0
% WITH CAPABILITY	93.0	83.5
ALASKA		
ESTIMATED POPULATION	7,757	8,050
% STANDARD ERROR	6.2	6.0
% WITH CAPABILITY	89.2	92.6
ARIZONA		
ESTIMATED POPULATION	5,589	5,125
% STANDARD ERROR	8.1	8.5
% WITH CAPABILITY	84.8	77.7
ARKANSAS		
ESTIMATED POPULATION	2,394	2,030
% STANDARD ERROR	12.4	13.8
% WITH CAPABILITY	84.6	71.8
CALIFORNIA		
ESTIMATED POPULATION	31,140	29,275
% STANDARD ERROR	3.2	3.4
% WITH CAPABILITY	86.5	81.4
COLORADO		
ESTIMATED POPULATION	4,058	3,755
% STANDARD ERROR	9.8	10.2
% WITH CAPABILITY	80.6	74.6
CONNECTICUT		
ESTIMATED POPULATION	1,914	1,891
% STANDARD ERROR	14.3	14.4
% WITH CAPABILITY	86.9	85.9
DELAWARE		
ESTIMATED POPULATION	1,297	1,229
% STANDARD ERROR	16.9	17.5
% WITH CAPABILITY	95.6	90.6

7.20 1990 GENERAL AVIATION AIRCRAFT EQUIPPED WITH AN ELECTRICAL SYSTEM AND/OR HAS AN EMERGENCY LOCATOR TRANSMITTER  
BY STATE OF BASED AIRCRAFT

PAGE 2 OF 7

STATE	ELECTRICAL SYSTEM	EMERGENCY LOCATOR TRANSMITTER
DISTRICT OF COLUMBIA ESTIMATED POPULATION % STANDARD ERROR % WITH CAPABILITY	8 146.9 58.4	8 146.9 58.4
FLORIDA ESTIMATED POPULATION % STANDARD ERROR % WITH CAPABILITY	14,031 5.1 87.7	12,902 5.3 80.7
GEORGIA ESTIMATED POPULATION % STANDARD ERROR % WITH CAPABILITY	4,567 9.1 84.9	4,328 9.3 80.5
HAWAII ESTIMATED POPULATION % STANDARD ERROR % WITH CAPABILITY	483 27.3 79.2	393 29.3 64.4
IDAHO ESTIMATED POPULATION % STANDARD ERROR % WITH CAPABILITY	1,724 14.6 85.3	1,598 15.3 79.0
ILLINOIS ESTIMATED POPULATION % STANDARD ERROR % WITH CAPABILITY	6,450 7.6 79.7	6,437 7.7 79.6
INDIANA ESTIMATED POPULATION % STANDARD ERROR % WITH CAPABILITY	3,871 9.9 84.1	3,729 10.1 81.0
IOWA ESTIMATED POPULATION % STANDARD ERROR % WITH CAPABILITY	2,483 12.3 76.7	2,442 12.5 75.4

7.20 1990 GENERAL AVIATION AIRCRAFT EQUIPPED WITH AN ELECTRICAL SYSTEM AND/OR HAS AN EMERGENCY LOCATOR TRANSMITTER  
BY STATE OF BASED AIRCRAFT

PAGE 3 OF 7

STATE	ELECTRICAL SYSTEM	EMERGENCY LOCATOR TRANSMITTER
KANSAS		
ESTIMATED POPULATION	3,268	3,005
% STANDARD ERROR	10.7	11.1
% WITH CAPABILITY	81.9	75.3
KENTUCKY		
ESTIMATED POPULATION	1,605	1,455
% STANDARD ERROR	15.7	16.6
% WITH CAPABILITY	85.8	77.7
LOUISIANA		
ESTIMATED POPULATION	3,211	2,897
% STANDARD ERROR	10.7	11.3
% WITH CAPABILITY	84.0	75.8
MAINE		
ESTIMATED POPULATION	1,442	1,340
% STANDARD ERROR	16.8	16.8
% WITH CAPABILITY	79.0	73.4
MARYLAND		
ESTIMATED POPULATION	3,060	3,019
% STANDARD ERROR	11.3	11.4
% WITH CAPABILITY	88.8	87.6
MASSACHUSETTS		
ESTIMATED POPULATION	2,917	2,687
% STANDARD ERROR	11.7	12.1
% WITH CAPABILITY	87.9	81.0
MICHIGAN		
ESTIMATED POPULATION	7,373	7,307
% STANDARD ERROR	7.2	7.2
% WITH CAPABILITY	83.2	82.5
MINNESOTA		
ESTIMATED POPULATION	5,081	4,900
% STANDARD ERROR	8.5	8.5
% WITH CAPABILITY	82.1	79.1

7.20 1990 GENERAL AVIATION AIRCRAFT EQUIPPED WITH AN ELECTRICAL SYSTEM AND/OR HAS AN EMERGENCY LOCATOR TRANSMITTER  
BY STATE OF BASED AIRCRAFT

PAGE 4 OF 7

STATE	ELECTRICAL SYSTEM	EMERGENCY LOCATOR TRANSMITTER
MISSISSIPPI		
ESTIMATED POPULATION	1,678	1,517
% STANDARD ERROR	15.1	16.0
% WITH CAPABILITY	83.5	75.4
MISSOURI		
ESTIMATED POPULATION	3,914	3,795
% STANDARD ERROR	9.7	10.0
% WITH CAPABILITY	80.3	77.8
MONTANA		
ESTIMATED POPULATION	1,980	1,860
% STANDARD ERROR	13.8	14.1
% WITH CAPABILITY	83.8	78.7
NEBRASKA		
ESTIMATED POPULATION	1,713	1,588
% STANDARD ERROR	14.3	14.8
% WITH CAPABILITY	80.9	75.1
NEVADA		
ESTIMATED POPULATION	1,991	1,958
% STANDARD ERROR	13.4	13.7
% WITH CAPABILITY	82.4	81.0
NEW HAMPSHIRE		
ESTIMATED POPULATION	1,223	1,171
% STANDARD ERROR	16.7	17.4
% WITH CAPABILITY	85.2	81.6
NEW JERSEY		
ESTIMATED POPULATION	3,728	3,612
% STANDARD ERROR	10.0	10.2
% WITH CAPABILITY	86.1	83.4
NEW MEXICO		
ESTIMATED POPULATION	1,831	1,736
% STANDARD ERROR	14.4	15.0
% WITH CAPABILITY	70.0	68.4

7.20 1990 GENERAL AVIATION AIRCRAFT EQUIPPED WITH AN ELECTRICAL SYSTEM AND/OR HAS AN EMERGENCY LOCATOR TRANSMITTER  
BY STATE OF BASED AIRCRAFT

PAGE 5 OF 7

STATE	ELECTRICAL SYSTEM	EMERGENCY LOCATOR TRANSMITTER
NEW YORK		
ESTIMATED POPULATION	6,467	6,332
% STANDARD ERROR	7.7	7.7
% WITH CAPABILITY	81.6	79.9
NORTH CAROLINA		
ESTIMATED POPULATION	4,824	4,621
% STANDARD ERROR	8.9	9.0
% WITH CAPABILITY	89.6	85.8
NORTH DAKOTA		
ESTIMATED POPULATION	1,402	1,227
% STANDARD ERROR	16.6	17.9
% WITH CAPABILITY	77.1	67.5
OHIO		
ESTIMATED POPULATION	7,360	7,260
% STANDARD ERROR	7.2	7.2
% WITH CAPABILITY	82.1	81.0
OKLAHOMA		
ESTIMATED POPULATION	3,851	3,576
% STANDARD ERROR	9.9	10.4
% WITH CAPABILITY	85.6	79.5
OREGON		
ESTIMATED POPULATION	4,997	4,775
% STANDARD ERROR	8.7	8.8
% WITH CAPABILITY	86.3	82.5
PENNSYLVANIA		
ESTIMATED POPULATION	6,134	5,887
% STANDARD ERROR	7.8	7.9
% WITH CAPABILITY	80.8	77.6
RHODE ISLAND		
ESTIMATED POPULATION	335	341
% STANDARD ERROR	34.5	33.9
% WITH CAPABILITY	87.2	88.8

7.20 1990 GENERAL AVIATION AIRCRAFT EQUIPPED WITH AN ELECTRICAL SYSTEM AND/OR HAS AN EMERGENCY LOCATOR TRANSMITTER  
BY STATE OF BASED AIRCRAFT

PAGE 6 OF 7

STATE	ELECTRICAL SYSTEM	EMERGENCY LOCATOR TRANSMITTER
<b>SOUTH CAROLINA</b>		
ESTIMATED POPULATION	1,978	1,895
% STANDARD ERROR	13.8	14.0
% WITH CAPABILITY	83.7	80.2
<b>SOUTH DAKOTA</b>		
ESTIMATED POPULATION	998	988
% STANDARD ERROR	19.1	19.1
% WITH CAPABILITY	73.8	73.1
<b>TENNESSEE</b>		
ESTIMATED POPULATION	3,350	3,205
% STANDARD ERROR	10.5	10.8
% WITH CAPABILITY	81.7	78.1
<b>TEXAS</b>		
ESTIMATED POPULATION	16,633	15,450
% STANDARD ERROR	4.6	4.8
% WITH CAPABILITY	85.7	79.6
<b>UTAH</b>		
ESTIMATED POPULATION	1,432	1,257
% STANDARD ERROR	16.7	17.8
% WITH CAPABILITY	87.2	76.5
<b>VERMONT</b>		
ESTIMATED POPULATION*	520	473
% STANDARD ERROR	27.0	28.4
% WITH CAPABILITY	81.7	74.4
<b>VIRGINIA</b>		
ESTIMATED POPULATION	3,053	3,006
% STANDARD ERROR	11.1	11.3
% WITH CAPABILITY	83.5	82.2
<b>WASHINGTON</b>		
ESTIMATED POPULATION	6,688	6,147
% STANDARD ERROR	7.5	7.8
% WITH CAPABILITY	84.8	77.9



7.20 1990 GENERAL AVIATION AIRCRAFT EQUIPPED WITH AN ELECTRICAL SYSTEM AND/OR HAS AN EMERGENCY LOCATOR TRANSMITTER  
BY STATE OF BASED AIRCRAFT

PAGE 7 OF 7

STATE	ELECTRICAL SYSTEM	EMERGENCY LOCATOR TRANSMITTER
WEST VIRGINIA		
ESTIMATED POPULATION	1,154	1,084
% STANDARD ERROR	18.8	19.2
% WITH CAPABILITY	91.9	86.4
WISCONSIN		
ESTIMATED POPULATION	3,869	4,101
% STANDARD ERROR	10.0	9.6
% WITH CAPABILITY	74.7	79.2
WYOMING		
ESTIMATED POPULATION	812	808
% STANDARD ERROR	21.2	21.5
% WITH CAPABILITY	88.4	88.0
PUERTO RICO		
ESTIMATED POPULATION	406	420
% STANDARD ERROR	31.3	30.0
% WITH CAPABILITY	84.5	87.4
OTHER U.S. TERRITORIES		
ESTIMATED POPULATION	100	97
% STANDARD ERROR	61.3	62.3
% WITH CAPABILITY	92.1	89.1
TOTAL		
ESTIMATED POPULATION	220,373	209,558
% STANDARD ERROR	0.4	0.5
% WITH CAPABILITY	82.7	78.7

NOTE: COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

7.21 1990 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN UNDER IFR FLIGHT PLANS  
BY TRANSPONDER EQUIPPED AIRCRAFT BY AIRCRAFT TYPE

PAGE 1 OF 2

AIRCRAFT TYPE	ESTIMATED NUMBER AIRCRAFT FLOWN IFR	PERCENT STANDARD ERROR	ESTIMATED PERCENT ACTIVE FLOWN IFR	TOTAL HOURS FLOWN IFR	PERCENT STANDARD ERROR	PERCENT OF TOTAL HOURS	EST. NUMBER FLOWN IFR WITH TRANSPONDER (*)	PERCENT STANDARD ERROR	PERCENT AIRCRAFT FLOWN TRANSPONDER
<b>FIXED WING</b>									
<b>FIXED WING - PISTON</b>									
1 ENG: 1-3 SEATS	4,774	10.1	7.9	171,383	10.1	1.9	0	0.0	0.0
1 ENG: 4+ SEATS	53,567	2.0	51.2	2,591,042	2.0	17.6	299	41.4	0.6
1 ENGINE: TOTAL	58,341	2.0	35.3	2,762,426	2.0	11.7	299	41.4	0.5
2 ENG: 1-6 SEATS	14,054	2.3	92.5	1,145,048	2.3	46.1	61	73.3	0.4
2 ENG: 7+ SEATS	7,219	2.5	97.3	986,555	2.6	56.9	55	65.4	0.8
2 ENGINE: TOTAL	21,273	1.7	94.1	2,131,603	1.7	50.5	116	49.5	0.5
PISTON: OTHER	62	49.0	66.5	3,180	49.0	5.6	0	0.0	0.0
PISTON: TOTAL	79,676	1.5	42.4	4,897,209	1.3	17.5	415	32.9	0.5
<b>FIXED WING - TURBOPROP</b>									
2 ENG: 1-12 SEATS	4,528	1.0	100.0	1,067,892	1.0	73.2	70	55.5	1.6
2 ENG: 13+ SEATS	1,137	3.3	100.0	1,066,245	3.3	100.0	257	27.8	22.6
2 ENGINE: TOTAL	5,666	1.1	100.0	2,134,137	1.7	90.8	327	24.9	5.8
TURBOPROP: OTHER	211	13.2	53.5	68,811	13.2	40.4	11	86.4	5.3
TURBOPROP: TOTAL	5,877	1.1	100.0	2,202,948	1.7	87.4	339	24.2	5.8

7.21 1990 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN UNDER IFR FLIGHT PLANS  
BY TRANSPONDER EQUIPPED AIRCRAFT BY AIRCRAFT TYPE

PAGE 2 OF 2

AIRCRAFT TYPE	ESTIMATED NUMBER AIRCRAFT FLOWN IFR	PERCENT STANDARD ERROR	ESTIMATED PERCENT ACTIVE FLOWN IFR	TOTAL HOURS FLOWN IFR	PERCENT STANDARD ERROR	PERCENT OF TOTAL HOURS	EST. NUMBER FLOWN IFR WITH TRANSPONDER (*)	PERCENT STANDARD ERROR	PERCENT AIRCRAFT FLOWN TRANSPONDER
FIXED WING - TURBOJET									
2 ENGINE TURBOJET	4,237	0.7	100.0	1,391,022	0.7	100.0	2,105	5.8	49.7
TURBOJET: OTHER	453	9.2	100.0	145,532	9.2	100.0	341	13.1	75.3
TURBOJET: TOTAL	4,690	1.1	100.0	1,536,555	1.1	100.0	2,446	5.3	52.2
FIXED WING: TOTAL	90,243	1.4	45.6	8,636,711	0.9	27.0	3,200	6.4	3.5
ROTORCRAFT									
PISTON	13	137.5	0.4	714	137.5	0.1	0	0.0	0.0
TURBINE	499	19.0	12.7	31,921	19.0	2.0	45	60.8	9.1
ROTORCRAFT: TOTAL	512	18.9	6.9	32,636	18.8	1.4	45	60.8	8.9
OTHER AIRCRAFT	29	71.8	0.4	1,775	71.8	0.5	0	0.0	0.0
TOTAL	90,784	1.4	42.8	8,671,122	0.9	24.9	3,245	6.4	3.6

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

(\*) INCLUDES MODE A, MODE C, AND MODE S.

## CHAPTER VIII

### NATIONAL AIRSPACE SYSTEM (NAS) CAPABILITY GROUPS BASED ON AVIONICS

Knowing the estimates of the number of aircraft containing various individual pieces of avionics equipment (the basis for Chapter VII) does not provide enough information to determine an aircraft's overall ability to use the National Airspace System (NAS). In order to obtain a certain capability or privilege, an aircraft may be required to have several pieces of avionics gear. This requirement led to the study of groups of avionics equipment, rather than individual pieces. Two avionics capability group classifications were developed, hierarchical and nonhierarchical. These two capability group classifications, which provide a framework for the general aviation fleet, relate airborne avionics equipment groups to aircraft capability to perform in the NAS and facilitate analysis of the activity and characteristics of the general aviation fleet.

This chapter presents two figures and 11 tables on hierarchical and nonhierarchical statistics. Figures 8.1 and 8.2 list the hierarchical and nonhierarchical capability groups, respectively. Tables 8.1-8.5 consider hierarchical capability groups in five different categories, by: aircraft type, age of aircraft, total flight hour groups, primary use, and region of based aircraft, respectively. Tables 8.7-8.11 present nonhierarchical capability groups in the same five categories. The table in between these two groups, Table 8.6, is a comparison between nonhierarchical and hierarchical capability groups.

The hierarchical class consists of avionics groupings which comply with FAA requirements for use in various aspects of the NAS. FAA regulations address three basic capabilities--the capability to: (1) fly in different segments of the airspace; (2) fly under visual flight rules (VFR) and instrument flight rules (IFR); and (3) land at different classes of airports. These groups are called hierarchical because, in general, the avionics equipment and associated capabilities for one capability group are a subset of the avionics equipment and associated capabilities for the next higher group, and so on.

The second class of capability groups, nonhierarchical, consists of avionics groupings not required by FAA regulations, but which give an aircraft additional capability in the NAS. The nonhierarchical groups were formed by grouping together component pieces of avionics equipment which, as a whole, form a complete avionics system. A complete avionics system enables an aircraft to make full use of a communications, navigation, or surveillance system in the NAS.

This year's survey form was revised to capture more concise information on transponder equipment than in the past. Respondents were first to indicate if their aircraft had a Mode A, Mode C, or Mode S transponder. Next, they were to indicate if their aircraft had a traffic alert and collision avoidance system (TCAS I or TCAS II). Finally, respondents were to check a box on the survey if their aircraft had no transponder equipment.

Some observations derived from the tables in this chapter include:

- o The aircraft type increases in sophistication as the level of avionics increases (Tables 8.1 and 8.7).
- o Aircraft in the more sophisticated capability groups are, on average, newer aircraft than those in less sophisticated capability groups (Tables 8.2 and 8.8).
- o In both the hierarchical and nonhierarchical capability groups, aircraft containing more avionics equipment and capabilities are flown, on average, more hours than those with less avionics equipment (Tables 8.3 and 8.9).
- o In general, the more sophisticated the hierarchical capability groups, the more the predominant use shifts from personal, to business/personal, to corporate/business (Table 8.4).
- o As nonhierarchical capability groups become more sophisticated, the predominant primary use of the aircraft changes from personal, to business/personal, to business/executive. For example, executive aircraft alone constitute about 40 percent of the aircraft reporting a radar altimeter, yet executive aircraft compose only 4.3 percent of the general aviation fleet (Table 8.10).

Table 8.6 cross-tabulates the two capability groups and reveals the following about the general aviation fleet:

- o More than 31 percent of the general aviation aircraft have avionics equipment enabling them to fly above 18,000 feet in positive controlled airspace.
- o The percent of the general aviation fleet which cannot fly above 12,500 feet due only to avionics limitations has dropped from 40 percent in 1989 to roughly 34 percent in 1990.
- o Table 8.6 indicates that those aircraft in the least sophisticated, nonhierarchical capability groups constitute the bulk of the least sophisticated, hierarchical capability groups. Of the percent of aircraft possessing no nonhierarchical capability group equipment (i.e., no regulatory avionics), approximately 65 percent fall into the hierarchical capability groups 1, 2, and 3. Similarly, those aircraft in the most sophisticated nonhierarchical capability groups are also in the most sophisticated hierarchical capability groups. For example, 84 percent of the aircraft possessing a complete Instrument Landing System (ILS) and a radar altimeter fall into the hierarchical capability group 8.

- o In 1989, LORAN-C, Long Range Navigation equipment (LRNAV) was expanded to include: 1) Visual Flight Rules (VFR) only; 2) Instrument Flight Rules (IFR) navigation; and 3) IFR approach. These additions have had a strong impact on the reported total number of aircraft with LRNAV equipment. In 1983, only 9,393 aircraft (3.6 percent of the total population) reported any type of LRNAV equipment. In 1986, this number jumped to 47,210 (17.6 percent of the population). Since then, the number of aircraft with LRNAV equipment has steadily risen, from 61,981 aircraft in 1987, to 72,412 aircraft in 1988, to 83,855 aircraft in 1989, to a total of 99,421 aircraft (37.3 percent of the population) this year. These increases most likely reflect both the specific addition of LORAN-C and Omega to the survey form, as well as a rise in the number of aircraft containing LORAN-C receivers.

**Figure 8.1**  
**HIERARCHICAL CAPABILITY GROUPS**

GROUP	AVIONICS	CAPABILITIES
1	No Regulatory Avionics	<p>A. • Up to and including 12,500 feet Mean Sea Level (MSL).</p> <ul style="list-style-type: none"> <li>• Gliders—Up to and including 18,000 feet MSL.</li> <li>• ADF—Colored airways below 12,500 feet MSL.</li> <li>• VOR or RNAV—VOR airways below 12,500 feet MSL.</li> <li>• RNAV—Low altitude RNAV airways below 12,500 feet MSL.</li> </ul> <p>B. • VFR flight, day and night.</p> <p>C. • Uncontrolled airports.</p>
2	Two-way Communications	<p>A. • Up to and including 12,500 feet MSL.</p> <ul style="list-style-type: none"> <li>• Gliders—Up to and including 18,000 feet MSL.</li> </ul> <p>B. • VFR flight, day and night.</p> <p>C. • Non-TCA controlled airports.</p> <ul style="list-style-type: none"> <li>• Group III TCAs.</li> <li>• Helicopters with 4096 code transponders Group III TCAs.</li> <li>• All helicopters—Group I and II TCAs below 1,000 feet Above Ground Level (AGL).</li> </ul> <p><b>Note:</b> Air taxis with navigation system and transponder: Group II TCAs.</p> <p>Air taxis with navigation system, transponder and altitude reporting: Group I TCAs and non-positive controlled airspace.</p> <p>Air taxis with navigation system, DME, transponder and altitude reporting: Group I TCAs and positive controlled airspace.</p>
3	Two-way Communications Two Systems—Air Taxis Very High Frequency Omni-Directional Radio Range (VOR) or Automatic Direction Finder (ADF) or Area Navigational Equipment (RNAV)	<p>A. • Up to and including 12,500 feet MSL.</p> <ul style="list-style-type: none"> <li>• Gliders—Up to and including 18,000 feet MSL.</li> <li>• ADF—Colored airways below 12,500 feet MSL.</li> <li>• VOR or RNAV—VOR airways below 12,500 feet MSL.</li> <li>• RNAV—Low altitude RNAV airways below 12,500 feet MSL.</li> </ul> <p>B. • IFR flight.</p> <p>C. • Non-TCA controlled airways.</p> <ul style="list-style-type: none"> <li>• Group III TCAs.</li> <li>• Helicopters with 4096 transponders—Group II TCAs.</li> <li>• All helicopters—Group I and II TCAs below 1,000 feet AGL.</li> </ul>

**Figure 8.1**  
**HIERARCHICAL CAPABILITY GROUPS (Cont.)**

GROUP	AVIONICS	CAPABILITIES
4	Two-way Communications Two Systems—Air Taxis 4096 Code Transponder VOR or RNAV	<ul style="list-style-type: none"> <li>A. • Up to and including 12,500 feet MSL.</li> <li>• Gliders—Up to and including 18,000 feet MSL.</li> <li>• VOR airways below 12,500 feet MSL.</li> <li>• RNAV—Low altitude RNAV airways below 12,500 feet MSL.</li> <li>B. • IFR flight.</li> <li>C. • Non-TCA controlled airports.</li> <li>• Group II TCAs.</li> <li>• Helicopters—Group I TCAs below 1,000 feet AGL.</li> </ul>
5	4096 Code Transponder Altitude Encoding Equipment	<ul style="list-style-type: none"> <li>A. • Non-positive controlled airspace.</li> <li>B. • VFR flight, day and night.</li> <li>C. • Uncontrolled airports.</li> <li>• Group III TCAs.</li> </ul>
6	Two-way Communications 4096 Code Transponder Altitude Encoding Equipment	<ul style="list-style-type: none"> <li>A. • Non-positive controlled airspace.</li> <li>B. • VFR flight, day and night.</li> <li>C. • Non-TCA controlled airports.</li> <li>• Group III TCAs.</li> <li>• Helicopters—Group I TCAs.</li> </ul>
7	Two-way Communications 4096 Code Transponder Altitude Encoding Equipment VOR	<ul style="list-style-type: none"> <li>A. • Non-positive controlled airspace.</li> <li>• VOR airways.</li> <li>B. • IFR flight.</li> <li>C. • Group I TCAs.</li> </ul>
8	Two-way Communications 4096 Code Transponder Altitude Encoding Equipment VOR and/or RNAV Distance Measuring Equipment (DME)	<ul style="list-style-type: none"> <li>A. • Positive controlled airspace.</li> <li>• Jet routes.</li> <li>• RNAV—RNAV routes.</li> <li>B. • IFR flight.</li> <li>C. • Group I TCAs.</li> </ul>



**Figure 8.2**  
**NONHIERARCHICAL CAPABILITY GROUPS**

<b>GROUP</b>	<b>AVIONICS</b>	<b>CAPABILITIES</b>
<b>1</b>	Localizer (LOC)	Partial use of airport Instrument Landing System (ILS).
<b>2</b>	LOC Marker Beacon (MB)	Partial use of airport ILS.
<b>3</b>	LOC MB Glide Slope (GS)	Full use of airport ILS.
<b>4</b>	Long Range Navigation (LRNAV) (LORAN, Omega or other) Visual Flight Rules only, ENF	Area navigation over long distances and large bodies of water.
<b>5</b>	Radar Altimeter (RA)	Determination of altitude above level of terrain.
<b>6</b>	Microwave Landing System (MLS)	More accurate and flexible landing approaches, especially at airports with mountains and large buildings nearby.
<b>7</b>	MLS Instrument Landing System (ILS)	Backup landing systems.
<b>8</b>	LRNAV MLS Thunderstorm Detection Equipment Weather Radar Traffic Alert and Collision Avoidance System (TCAS I and TCAS II) Mode S	Sophisticated communications, navigation, and surveillance capabilities.

8-7

8.1 1990 GENERAL AVIATION AIRCRAFT HIERARCHICAL CAPABILITY GROUPS  
BY AIRCRAFT TYPE

PAGE 2 OF 3

AIRCRAFT TYPE	HIERARCHICAL CAPABILITY GROUPS							
	1	2	3	4	5	6	7	8
2 ENGINES 13+ SEATS	ESTIMATE	0	55	118	64	137	38	874
	% STD. ERROR	0.0	72.6	43.5	58.2	29.6	55.1	7.9
	ROW %	0.0	4.3	9.2	5.0	10.6	2.9	67.8
TURBOPROP OTHER	COLUMN %	0.0	0.2	0.7	1.8	1.0	0.1	1.1
	ESTIMATE	153	20	33	0	128	85	73
	% STD. ERROR	13.7	91.1	59.9	0.0	16.8	33.2	36.1
FIXED WING - TURBOJET	ROW %	30.7	4.0	6.6	0.0	25.7	17.0	14.6
	COLUMN %	0.5	0.1	0.2	0.0	0.9	0.1	0.1
	TOTAL							1,289
2 ENGINES	ESTIMATE	38	0	148	146	286	22	3,666
	% STD. ERROR	81.4	0.0	34.0	33.5	25.2	27.3	2.6
	ROW %	0.9	0.0	3.4	3.4	6.6	0.5	85.2
TURBOJET OTHER	COLUMN %	0.1	0.0	0.9	4.0	2.1	0.0	4.4
	ESTIMATE	19	3	20	49	13	38	440
	% STD. ERROR	49.1	272.2	74.9	54.0	109.0	64.2	8.7
ROTORCRAFT	ROW %	3.2	0.5	3.4	8.4	2.2	6.5	75.1
	COLUMN %	0.1	0.0	0.1	1.4	0.1	0.1	0.5
	TOTAL							586
PISTON	ESTIMATE	1,393	1,347	94	181	1,644	432	40
	% STD. ERROR	14.8	15.3	47.6	46.5	12.3	25.0	107.2
	ROW %	24.2	23.4	1.6	3.1	28.6	7.5	0.7
TURBINE	COLUMN %	4.6	6.8	0.6	5.0	12.1	0.6	0.0
	ESTIMATE	51	360	147	51	1,641	1,343	937
	% STD. ERROR	55.0	26.6	46.6	62.2	12.2	13.4	16.2
TOTAL	ROW %	1.1	7.8	3.2	1.1	35.5	29.1	20.3
	COLUMN %	0.2	1.8	0.9	1.4	12.1	1.8	1.1
	TOTAL							4,620

8.1 1990 GENERAL AVIATION AIRCRAFT HIERARCHICAL CAPABILITY GROUPS  
BY AIRCRAFT TYPE

PAGE 3 OF 3

AIRCRAFT TYPE	HIERARCHICAL CAPABILITY GROUPS							
	1	2	3	4	5	6	7	8
OTHER AIRCRAFT	ESTIMATE	5,389	406	17	8	73	118	24
	% STD. ERROR	5.3	24.0	41.6	81.1	58.4	33.5	117.4
	ROW %	42.9	3.8	0.2	0.1	0.7	1.1	0.2
	COLUMN %	14.8	1.7	0.1	0.2	0.5	0.2	0.0
ALL AIRCRAFT	ESTIMATE	19,709	23,954	17,020	3,618	13,616	75,157	82,723
	% STD. ERROR	2.8	3.7	4.7	10.4	5.0	1.8	1.4
	ROW %	11.5	9.0	6.4	1.4	5.1	28.2	31.1
								TOTAL
								10,562
								0.0
								4.0
								266,344

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

HIERARCHICAL CAPABILITY GROUPS KEY

- 1 - NO REGULATORY AVIONICS.
- 2 - TWO-WAY COMMUNICATIONS.
- 3 - TWO-WAY COMMUNICATIONS, TWO SYSTEMS: AIR TAXIS; VOR OR ADF OR RNAV.
- 4 - TWO-WAY COMMUNICATIONS, TWO SYSTEMS: AIR TAXIS; MODE\_S CAPABILITY; VOR OR RNAV.
- 5 - TWO-WAY COMMUNICATIONS, MODE\_S CAPABILITY, ALTITUDE ENCODING CAPABILITY.
- 6 - TWO-WAY COMMUNICATIONS, MODE\_S CAPABILITY, ALTITUDE ENCODING CAPABILITY.
- 7 - TWO-WAY COMMUNICATIONS, TWO SYSTEMS: AIR TAXIS; MODE\_S CAPABILITY, ALTITUDE ENCODING CAPABILITY, VOR.
- 8 - TWO-WAY COMMUNICATIONS, TWO SYSTEMS: AIR TAXIS; MODE\_S CAPABILITY, ALTITUDE ENCODING CAPABILITY, VOR AND DME OR RNAV.

8.2 1990 GENERAL AVIATION AIRCRAFT HIERARCHICAL CAPABILITY GROUPS  
BY AGE OF AIRCRAFT

PAGE 1 OF 2

AGE OF AIRCRAFT	HIERARCHICAL CAPABILITY GROUPS							
	1	2	3	4	5	6	7	8
	TOTAL							
0 - 4 YEARS	ESTIMATE	2,576	1,598	131	139	880	2,260	3,265
	% STD. ERROR	15.5	24.2	48.9	53.8	24.3	18.5	10.4
	ROW %	21.2	13.1	1.1	1.1	7.2	18.6	26.8
	COLUMN %	13.1	6.7	0.8	3.8	6.5	3.0	3.9
5 - 9 YEARS	ESTIMATE	1,711	881	541	344	954	3,558	9,000
	% STD. ERROR	17.4	28.5	30.0	36.3	25.9	12.6	6.0
	ROW %	8.7	4.5	2.7	1.7	4.8	18.0	45.6
	COLUMN %	8.7	3.7	3.2	9.5	7.0	4.7	10.9
10 - 14 YEARS	ESTIMATE	3,504	2,148	2,703	959	3,760	15,632	28,085
	% STD. ERROR	13.1	16.7	12.8	20.3	10.9	5.1	3.3
	ROW %	5.7	3.5	4.4	1.6	6.1	25.4	45.6
	COLUMN %	17.8	9.0	15.9	26.5	27.6	20.8	34.0
15 - 19 YEARS	ESTIMATE	2,253	2,265	2,484	702	2,228	12,321	13,994
	% STD. ERROR	15.2	14.7	13.5	24.6	14.1	5.9	5.2
	ROW %	5.6	5.6	6.2	1.7	5.5	30.7	34.9
	COLUMN %	11.4	9.5	14.6	19.4	16.4	16.4	16.9
20 - 24 YEARS	ESTIMATE	2,062	2,796	3,267	478	1,036	15,369	12,688
	% STD. ERROR	17.1	13.8	11.8	31.1	19.4	5.1	5.2
	ROW %	5.1	7.0	8.1	1.2	2.6	38.3	31.6
	COLUMN %	10.5	11.7	19.2	13.2	7.6	20.4	15.3
25 - 29 YEARS	ESTIMATE	1,135	2,066	2,882	565	934	8,440	8,297
	% STD. ERROR	20.8	15.2	13.3	26.8	24.7	7.0	6.5
	ROW %	4.3	7.9	11.0	2.2	3.6	32.3	31.8
	COLUMN %	5.8	8.6	16.9	15.6	6.9	11.2	10.0

## 8.2 1990 GENERAL AVIATION AIRCRAFT HIERARCHICAL CAPABILITY GROUPS BY AGE OF AIRCRAFT

AGE OF AIRCRAFT	HIERARCHICAL CAPABILITY GROUPS								TOTAL
	1	2	3	4	5	6	7	8	
30 - 34 YEARS	ESTIMATE % STD. ERROR ROW & COLUMN &	1,140 18.4 5.8 5.8	2,256 13.5 11.4 9.4	2,147 14.3 10.9 12.6	168 50.3 0.8 4.6	1,242 20.9 6.3 9.1	7,532 7.1 38.1 10.0	3,983 9.5 20.1 4.8	19,784 4.0 7.4
35+ YEARS	ESTIMATE % STD. ERROR ROW & COLUMN &	5,974 7.2 12.9 30.3	9,543 5.1 20.5 39.8	2,913 9.6 6.3 17.1	293 30.4 0.6 8.1	1,896 12.7 4.1 13.9	10,266 5.3 22.1 13.7	2,908 10.4 6.3 3.5	46,457 1.6 17.4
TOTAL	ESTIMATE % STD. ERROR ROW &	19,709 3.9 7.4	23,954 3.7 9.0	17,020 4.7 6.4	3,618 10.4 1.4	13,616 5.0 5.1	75,157 1.8 28.2	82,723 1.4 31.1	266,344

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

HIERARCHICAL CAPABILITY GROUPS KEY

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8.3 1990 GENERAL AVIATION AIRCRAFT HIERARCHICAL CAPABILITY GROUPS  
BY TOTAL FLIGHT HOUR GROUPS

PAGE 1 OF 2

TOTAL FLIGHT HOUR GROUPS		HIERARCHICAL CAPABILITY GROUPS							
		1	2	3	4	5	6	7	8
1 - 49 HOURS	ESTIMATE	7,894	6,756	9,044	5,812	589	2,654	18,757	11,541
	% STD. ERROR	6.6	7.0	6.5	8.4	25.2	13.0	4.5	5.6
	ROW %	12.5	10.7	14.3	9.2	0.9	4.2	29.8	18.3
50 - 99 HOURS	ESTIMATE	2,794	3,999	4,498	3,371	795	2,090	20,340	18,073
	% STD. ERROR	11.7	9.3	9.8	11.2	24.1	13.7	4.3	4.4
	ROW %	5.0	7.1	8.0	6.0	1.4	3.7	36.3	32.3
100 - 149 HOURS	ESTIMATE	1,133	1,085	1,956	1,368	738	1,009	11,345	15,949
	% STD. ERROR	18.3	17.4	14.4	17.6	23.6	20.5	5.9	4.6
	ROW %	3.3	3.1	5.7	4.0	2.1	2.9	32.8	46.1
150 - 199 HOURS	ESTIMATE	742	644	412	668	185	761	4,647	9,812
	% STD. ERROR	24.8	25.6	32.3	26.1	43.8	24.0	9.6	6.0
	ROW %	4.2	3.6	2.3	3.7	1.0	4.3	26.0	54.9
200 - 249 HOURS	ESTIMATE	764	332	458	453	148	1,079	2,824	7,313
	% STD. ERROR	22.4	32.2	29.7	32.0	52.6	19.0	12.1	6.9
	ROW %	5.7	2.5	3.4	3.4	1.1	8.1	21.1	54.7
250 - 299 HOURS	ESTIMATE	532	106	63	309	143	277	1,668	3,603
	% STD. ERROR	28.1	49.1	67.7	40.0	59.6	34.4	16.4	9.7
	ROW %	7.9	1.6	0.9	4.6	2.1	4.1	24.9	53.8
TOTAL		1.7	0.5	0.3	1.8	4.0	2.0	2.2	4.4

8.3 1990 GENERAL AVIATION AIRCRAFT HIERARCHICAL CAPABILITY GROUPS  
BY TOTAL FLIGHT HOUR GROUPS

PAGE 2 OF 2

TOTAL FLIGHT HOUR GROUPS		1	2	3	4	5	6	7	8	TOTAL
HIERARCHICAL CAPABILITY GROUPS										
300 - 349 HOURS	ESTIMATE	802	487	304	10	95	779	1,300	3,718	7,494
	% STD. ERROR	23.2	29.6	36.5	130.3	67.9	22.2	18.5	9.6	7.1
	ROW & COLUMN %	10.7 2.6	6.5 2.5	4.1 1.3	0.1 0.1	1.3 2.6	10.4 5.7	17.3 1.7	49.6 4.5	2.8
350 - 399 HOURS	ESTIMATE	295	240	103	105	14	710	1,721	1,942	5,130
	% STD. ERROR	36.3	45.2	65.8	69.8	84.5	23.5	16.6	13.2	8.8
	ROW & COLUMN %	5.8 1.0	4.7 1.2	2.0 0.4	2.0 0.6	0.3 0.4	13.8 5.2	33.5 2.3	37.9 2.3	1.9
400 - 449 HOURS	ESTIMATE	387	249	9	160	83	243	1,283	1,998	4,412
	% STD. ERROR	34.5	33.7	123.3	51.8	72.9	38.3	19.2	12.0	9.1
	ROW & COLUMN %	8.8 1.3	5.6 1.3	0.2 0.0	3.6 0.9	1.9 2.3	5.5 1.8	29.1 1.7	45.3 2.4	1.7
450+ HOURS	ESTIMATE	1,232	629	434	645	414	2,908	6,396	5,807	18,465
	% STD. ERROR	17.0	23.7	29.6	25.6	28.8	10.0	8.3	7.3	4.2
	ROW & COLUMN %	6.7 4.0	3.4 3.2	2.4 1.8	3.5 3.8	2.2 11.4	15.7 21.4	34.6 8.5	31.4 7.0	6.9
INACTIVE	ESTIMATE	13,919	5,188	6,705	4,213	237	1,042	4,867	3,093	39,264
	% STD. ERROR	4.9	9.2	7.5	9.5	33.9	21.4	9.2	10.3	2.7
	ROW & COLUMN %	35.4 45.6	13.2 26.3	17.1 28.0	10.7 24.8	0.6 6.6	2.7 7.7	12.4 6.5	7.9 3.7	14.7
TOTAL	ESTIMATE	30,503	19,709	23,954	17,020	3,618	13,616	75,157	82,723	266,344
	% STD. ERROR	2.8	3.9	3.7	4.7	10.4	5.0	1.8	1.4	
	ROW &	11.5	7.4	9.0	6.4	1.4	5.1	28.2	31.1	

NOTE: ROW AND COLUMN SUBTOTALS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

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HIERARCHICAL CAPABILITY GROUPS KEY

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- 1 - NO REGULATORY AVIONICS.
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8.4 1990 GENERAL AVIATION AIRCRAFT HIERARCHICAL CAPABILITY GROUPS  
BY PRIMARY USE

PAGE 1 OF 2

PRIMARY USE	HIERARCHICAL CAPABILITY GROUPS							
	1	2	3	4	5	6	7	8
EXECUTIVE	ESTIMATE	7	61	242	113	215	567	10,097
	% STD. ERROR	80.2	81.9	35.8	53.9	42.0	24.7	3.9
	ROW %	0.1	0.5	2.1	1.0	1.9	5.0	88.5
BUSINESS	COLUMN %	0.0	0.3	1.4	3.1	1.6	0.8	12.2
	ESTIMATE	232	1,028	1,596	567	834	7,610	24,887
	% STD. ERROR	38.9	19.5	15.8	26.4	21.6	7.2	3.4
PERSONAL	ROW %	0.6	2.8	4.3	1.5	2.3	20.5	67.2
	COLUMN %	0.8	4.3	9.4	15.7	6.1	10.1	30.1
	ESTIMATE	9,661	14,071	8,615	1,510	4,378	46,220	35,667
INSTRUCTIONAL	% STD. ERROR	5.5	5.0	6.8	16.9	9.7	2.5	2.9
	ROW %	7.4	10.8	6.6	1.2	3.4	35.5	27.4
	COLUMN %	31.7	58.7	50.6	41.7	32.2	61.5	43.1
AERIAL APPLICATION	ESTIMATE	546	420	764	1,653	848	11,640	4,343
	% STD. ERROR	25.6	27.4	22.2	17.1	18.7	5.8	9.7
	ROW %	2.6	2.0	3.7	8.0	4.1	56.2	21.0
AERIAL OBSERVATION	COLUMN %	1.8	2.1	3.2	9.7	6.2	15.5	5.3
	ESTIMATE	5,183	1,462	128	45	205	336	292
	% STD. ERROR	5.4	16.6	48.9	50.0	41.9	34.0	30.8
TOTAL	ROW %	67.7	19.1	1.7	0.6	2.7	4.4	3.8
	COLUMN %	17.0	7.4	0.5	0.3	1.5	0.4	0.4
	ESTIMATE	214	469	587	291	596	1,873	1,591
	% STD. ERROR	39.2	24.9	25.9	40.8	26.5	15.5	15.9
	ROW %	3.7	8.2	10.2	5.1	10.4	32.6	27.7
	COLUMN %	0.7	2.4	2.5	1.7	4.4	2.5	1.9

8.4 1990 GENERAL AVIATION AIRCRAFT HIERARCHICAL CAPABILITY GROUPS  
BY PRIMARY USE

PAGE 2 OF 2

PRIMARY USE	HIERARCHICAL CAPABILITY GROUPS							
	1	2	3	4	5	6	7	8
OTHER WORK	ESTIMATE	591	134	40	36	186	576	59
	% STD. ERROR	22.4	48.7	86.6	89.3	36.2	26.1	44.3
	ROW %	32.5	7.4	2.2	2.0	10.2	31.7	3.2
COMMUTER AIR CARRIER	COLUMN %	3.0	0.6	0.2	1.0	1.4	0.8	0.1
	ESTIMATE	10	208	137	0	29	261	823
	% STD. ERROR	184.7	34.9	38.6	0.0	73.6	32.2	16.0
AIR TAXI	ROW %	0.7	14.2	9.3	0.0	2.0	17.8	56.0
	COLUMN %	0.1	0.9	0.8	0.0	0.2	0.3	1.0
	ESTIMATE	225	517	56	97	1,935	119	652
OTHER USE	% STD. ERROR	41.2	25.7	75.4	61.5	7.6	50.7	23.3
	ROW %	3.4	7.8	0.8	1.5	74.8	1.8	9.9
	COLUMN %	0.7	2.6	0.3	2.7	36.2	0.2	0.8
INACTIVE	ESTIMATE	284	881	251	253	315	1,191	1,431
	% STD. ERROR	38.9	21.0	34.7	28.0	37.2	18.7	13.5
	ROW %	5.7	17.7	5.1	5.1	6.3	24.0	28.8
TOTAL	COLUMN %	0.9	4.5	1.5	7.0	2.3	1.6	1.7
	ESTIMATE	13,919	5,188	6,705	237	1,042	4,867	3,093
	% STD. ERROR	4.9	9.2	7.5	33.9	21.4	9.2	10.3
TOTAL	ROW %	35.4	13.2	17.1	0.6	2.7	2.4	7.9
	COLUMN %	45.6	26.3	28.0	6.6	7.7	6.5	3.7
	ESTIMATE	30,503	19,709	23,954	3,618	13,616	75,157	82,723
TOTAL	% STD. ERROR	2.8	3.9	3.7	10.4	5.0	1.8	1.4
	ROW %	11.5	7.4	9.0	1.4	5.1	28.2	31.1

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

HIERARCHICAL CAPABILITY GROUPS KEY

- 1 - NC REGULATORY AVIONICS.
- 2 - TWO-WAY COMMUNICATIONS.
- 3 - TWO-WAY COMMUNICATIONS, TWO SYSTEMS: AIR TAXIS; VOR OR ADF OR RNAV.
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- 8 - TWO-WAY COMMUNICATIONS, TWO SYSTEMS: AIR TAXIS; MODE\_S CAPABILITY, ALTITUDE ENCODING CAPABILITY, VOR AND DME OR RNAV.

8.5 1990 GENERAL AVIATION AIRCRAFT HIERARCHICAL CAPABILITY GROUPS  
BY REGION OF BASED AIRCRAFT

PAGE 1 OF 2

REGION		HIERARCHICAL CAPABILITY GROUPS							
		1	2	3	4	5	6	7	8
ALASKAN	ESTIMATE	703	1,658	2,850	1,433	73	237	1,620	799
	% STD. ERROR	22.9	15.1	10.1	15.9	76.4	41.1	15.4	23.1
	ROW %	7.5	17.7	30.4	15.3	0.8	2.5	17.3	8.5
CENTRAL	COLUMN %	2.3	8.4	11.9	8.4	2.0	1.7	2.2	1.0
	ESTIMATE	2,758	924	934	1,487	159	482	3,769	4,088
	% STD. ERROR	12.2	19.5	21.0	17.2	53.3	29.7	10.7	9.2
EASTERN	ROW %	18.9	6.3	6.4	10.2	1.1	3.3	25.8	28.0
	COLUMN %	9.0	4.7	3.9	8.7	4.4	3.5	5.0	4.9
	ESTIMATE	3,260	2,004	1,744	1,953	452	1,185	9,445	10,609
GREAT LAKES	% STD. ERROR	10.7	13.3	14.8	14.3	30.9	18.2	6.7	5.8
	ROW %	10.6	6.5	5.7	6.4	1.5	3.9	30.8	34.6
	COLUMN %	10.7	10.2	7.3	11.5	12.5	8.7	12.6	12.8
NEW ENGLAND	ESTIMATE	7,100	3,085	5,326	2,939	481	2,032	12,589	13,507
	% STD. ERROR	7.4	11.6	8.8	12.2	28.5	13.8	5.7	5.1
	ROW %	15.1	6.6	11.3	6.2	1.0	4.3	26.8	28.7
	COLUMN %	23.3	15.7	22.2	17.3	13.3	14.9	16.8	16.3
	ESTIMATE	783	849	849	678	202	595	3,332	2,869
	% STD. ERROR	22.9	21.2	22.0	25.2	44.8	27.3	11.4	11.7
	ROW %	7.7	8.4	8.4	6.7	2.0	5.9	32.8	28.2
	COLUMN %	2.6	4.3	3.5	4.0	5.6	4.4	4.4	3.5
TOTAL									

8.5 1990 GENERAL AVIATION AIRCRAFT HIERARCHICAL CAPABILITY GROUPS  
BY REGION OF BASED AIRCRAFT

PAGE 2 OF 2

REGION	HIERARCHICAL CAPABILITY GROUPS							
	1	2	3	4	5	6	7	8
NORTHWEST MOUNTAIN	ESTIMATE	2,260	2,972	1,632	641	1,465	8,054	7,410
	% STD. ERROR	13.3	12.2	16.2	26.5	16.8	7.3	7.1
	ROW & COLUMN &	8.2 11.5	10.8 12.4	5.9 9.6	2.3 17.7	5.3 10.8	29.3 10.7	27.0 9.0
SOUTHERN	ESTIMATE	3,186	2,682	2,326	311	2,616	11,936	16,613
	% STD. ERROR	11.8	12.7	13.8	35.5	12.9	5.9	4.5
	ROW & COLUMN &	7.3 13.1	6.1 11.2	5.3 13.7	0.7 8.6	6.0 19.2	27.3 15.9	38.0 20.1
SOUTHWESTERN	ESTIMATE	2,049	2,900	2,471	308	2,208	9,241	11,189
	% STD. ERROR	14.0	12.8	13.1	36.8	12.7	6.8	5.5
	ROW & COLUMN &	5.9 10.4	8.3 12.1	7.1 14.5	0.9 8.5	6.3 16.2	26.4 12.3	32.0 13.5
WESTERN-PACIFIC	ESTIMATE	3,838	3,491	2,064	846	2,783	15,575	15,764
	% STD. ERROR	9.9	11.1	13.8	21.8	12.2	5.0	4.6
	ROW & COLUMN &	8.0 19.5	7.2 14.6	4.3 12.1	1.8 23.4	5.8 20.4	32.3 20.7	32.7 19.1
TOTAL	ESTIMATE	30,503	23,954	17,020	3,618	13,616	75,157	82,723
	% STD. ERROR	2.6	3.7	4.7	10.4	5.0	1.8	1.4
	ROW & COLUMN &	11.5 7.4	9.0 3.7	6.4 4.7	1.4 10.4	5.1 5.0	28.2 1.8	31.1 1.4

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.



HIERARCHICAL CAPABILITY GROUPS KEY

- 1 - NO REGULATORY AVIONICS.
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- 3 - TWO-WAY COMMUNICATIONS, TWO SYSTEMS: AIR TAXIS; VOR OR ADF OR RNAV.
- 4 - TWO-WAY COMMUNICATIONS, TWO SYSTEMS: AIR TAXIS; MODE\_S CAPABILITY; VOR OR RNAV.
- 5 - TWO-WAY COMMUNICATIONS, MODE\_S CAPABILITY, ALTITUDE ENCODING CAPABILITY.
- 6 - TWO-WAY COMMUNICATIONS, MODE\_S CAPABILITY, ALTITUDE ENCODING CAPABILITY.
- 7 - TWO-WAY COMMUNICATIONS, TWO SYSTEMS: AIR TAXIS; MODE\_S CAPABILITY, ALTITUDE ENCODING CAPABILITY, VOR.
- 8 - TWO-WAY COMMUNICATIONS, TWO SYSTEMS: AIR TAXIS; MODE\_S CAPABILITY, ALTITUDE ENCODING CAPABILITY, VOR AND DME OR RNAV.

8.6 1990 GENERAL AVIATION AIRCRAFT HIERARCHICAL CAPABILITY GROUPS  
BY NONHIERARCHICAL CAPABILITY GROUPS

PAGE 1 OF 2

NONHIERARCHICAL	HIERARCHICAL CAPABILITY GROUPS								TOTAL
	1	2	3	4	5	6	7	8	
LOCALIZER	ESTIMATE % STD. ERROR ROW % COLUMN %	144 49.5 1.0 0.7	1,108 20.5 8.0 4.6	1,591 15.8 11.5 9.3	213 42.7 1.5 5.9	518 28.6 3.7 3.8	8,924 6.7 64.3 11.9	1,313 17.0 9.5 1.6	13,879 5.3 5.2
LOCALIZER, MARKER BEACON	ESTIMATE % STD. ERROR ROW % COLUMN %	78 72.2 0.9 0.3	57 91.7 0.6 0.3	253 34.2 2.8 1.1	1,051 18.6 11.5 6.2	50 101.6 0.5 1.4	213 39.1 2.3 1.6	4,198 10.0 46.1 5.6	9,110 6.5 3.4
LOCALIZER, MARKER BEACON, GLIDE SLOPE	ESTIMATE % STD. ERROR ROW % COLUMN %	196 44.1 0.2 0.6	160 38.6 0.2 0.8	478 28.1 0.5 2.0	3,527 10.6 3.6 20.7	1,463 16.6 1.5 40.4	3,937 9.8 4.0 28.9	29,229 3.4 29.6 38.9	98,710 1.2 37.1
LOCALIZER, MARKER BEACON, GLIDE SLOPE, RADAR ALTIMETER	ESTIMATE % STD. ERROR ROW % COLUMN %	40 76.8 0.2 0.1	9 106.1 0.1 0.0	106 55.0 0.6 0.4	473 22.9 2.7 2.8	331 30.5 1.9 9.1	1,366 13.5 7.8 10.0	467 26.6 2.7 0.6	17,478 2.9 6.6
LRNAV (LORAN C, IFR NAV, IFR APP) OMEGA	ESTIMATE % STD. ERROR ROW % COLUMN %	489 28.8 0.5 1.6	2,617 13.0 2.6 13.3	2,908 11.7 2.9 12.1	3,974 9.8 4.0 23.3	1,724 15.3 1.7 47.7	6,706 7.4 6.7 49.3	33,170 3.2 33.4 44.1	99,421 1.5 37.3
RADAR ALTIMETER	ESTIMATE % STD. ERROR ROW % COLUMN %	81 54.1 0.4 0.3	18 67.6 0.1 0.1	138 51.7 0.7 0.6	513 21.9 2.7 3.0	427 27.2 2.2 11.8	1,691 12.7 8.9 12.4	876 19.0 4.6 1.2	19,070 2.8 7.2

8.6 1990 GENERAL AVIATION AIRCRAFT HIERARCHICAL CAPABILITY GROUPS  
BY NONHIERARCHICAL CAPABILITY GROUPS

PAGE 2 OF 2

NONHIERARCHICAL	HIERARCHICAL CAPABILITY GROUPS								TOTAL	
	1	2	3	4	5	6	7	8		
MICROWAVE LANDING SYSTEM	ESTIMATE % STD. ERROR ROW % COLUMN %	6 143.6 0.7 0.0	0 0.0 0.0 0.0	2 240.2 0.2 0.0	25 121.9 2.9 0.1	57 91.7 6.5 1.6	1 329.7 0.1 0.0	201 45.3 22.9 0.3	585 24.5 66.7 0.7	877 20.6 0.3
LOCALIZER, MARKER BEACON, GLIDE SLOPE, MICROWAVE LANDING SYSTEM	ESTIMATE % STD. ERROR ROW % COLUMN %	4 157.2 0.6 0.0	0 0.0 0.0 0.0	2 240.2 0.3 0.0	21 140.2 3.0 0.1	57 91.7 8.1 1.6	1 329.7 0.1 0.0	139 58.5 19.8 0.2	479 27.3 68.1 0.6	703 23.5 0.3
LRNAV, THSTDT, MODE S, MLS, WRAD, TCAS_I, TCAS_II	ESTIMATE % STD. ERROR ROW % COLUMN %	23 63.1 0.1 0.1	98 40.0 0.4 0.5	10 114.0 0.0 0.0	485 25.2 1.9 2.8	477 28.0 1.9 13.2	1,526 14.2 6.0 11.2	1,341 17.4 5.3 1.8	21,508 3.2 84.5 26.0	25,468 2.9 9.6
NO REGULATORY AVIONICS	ESTIMATE % STD. ERROR ROW % COLUMN %	29,675 2.8 29.4 97.3	16,857 4.2 16.7 85.5	19,400 4.2 19.2 81.0	7,823 7.2 7.8 46.0	995 21.0 1.0 27.5	3,659 10.0 3.6 26.9	20,604 4.2 20.4 27.4	1,886 14.9 1.9 2.3	100,898 1.2 37.9
ALL AIRCRAFT	ESTIMATE % STD. ERROR ROW %	30,503 2.8 11.5	19,709 3.9 7.4	23,954 3.7 9.0	17,020 4.7 6.4	3,618 10.4 1.4	13,616 5.0 5.1	75,157 1.8 28.2	82,723 1.4 31.1	266,344

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

HIERARCHICAL CAPABILITY GROUPS KEY

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8.7 1990 GENERAL AVIATION AIRCRAFT NONHIERARCHICAL CAPABILITY GROUPS  
BY AIRCRAFT TYPE

PAGE 1 OF 3

AIRCRAFT TYPE	NONHIERARCHICAL CAPABILITY GROUPS								NO GROUP	TOTAL	
	1	2	3	4	5	6	7	8			
FIXED WING											
FIXED WING - PISTON											
SINGLE ENGINE 1-3 SEATS	ESTIMATE	6,478	1,382	6,609	16,179	134	481	155	196	62,227	88,005
	% STD. ERROR	7.9	17.6	7.8	4.7	53.3	30.7	57.9	48.1	1.4	0.0
	ROW % COLUMN %	7.4 46.7	1.6 15.2	7.5 6.7	18.4 16.3	0.2 0.7	0.5 1.3	0.2 0.4	0.2 0.8	70.7 61.7	
SINGLE ENGINE 4+ SEATS	ESTIMATE	6,173	6,269	71,607	57,866	2,851	12,201	11,144	9,619	21,398	119,379
	% STD. ERROR	7.8	7.9	1.4	1.9	11.7	5.1	5.3	5.8	3.6	0.0
	ROW % COLUMN %	5.2 44.5	5.3 68.8	60.0 72.5	48.5 58.2	2.4 15.0	10.2 32.9	9.3 32.1	8.1 37.8	17.9 21.2	
TWO ENGINES 1-6 SEATS	ESTIMATE	357	735	12,820	9,065	3,058	8,309	8,055	5,210	512	17,600
	% STD. ERROR	31.4	20.7	2.7	4.4	9.3	4.3	4.4	6.6	22.8	0.0
	ROW % COLUMN %	2.0 2.6	4.2 8.1	72.8 13.0	51.5 9.1	17.4 16.0	47.2 22.4	45.8 23.2	29.6 20.5	2.9 0.5	
TWO ENGINES 7+ SEATS	ESTIMATE	219	365	5,466	4,186	2,241	5,158	4,919	2,925	691	8,892
	% STD. ERROR	32.6	33.7	4.4	6.4	8.8	4.6	5.0	8.7	18.9	0.0
	ROW % COLUMN %	2.5 1.6	4.1 4.0	61.5 5.5	47.1 4.2	25.2 11.8	58.0 13.9	55.3 14.2	32.9 11.5	7.8 0.7	
PISTON OTHER	ESTIMATE	11	63	77	73	6	94	34	6	6	182
	% STD. ERROR	51.1	48.7	37.8	36.4	169.6	30.6	74.3	225.5	70.8	0.0
	ROW % COLUMN %	6.0 0.1	34.6 0.7	42.3 0.1	40.1 0.1	3.3 0.0	51.6 0.3	18.7 0.1	3.3 0.0	3.3 0.0	
FIXED WING - TURBOPROP											
2 ENGINES 1-12 SEATS	ESTIMATE	2	94	526	3,290	4,077	4,462	4,368	3,221	2	4,623
	% STD. ERROR	347.1	49.3	16.7	4.1	2.2	1.3	1.6	4.2	176.9	0.0
	ROW % COLUMN %	0.0 0.0	2.0 1.0	11.4 0.5	71.2 3.3	88.2 21.4	96.5 12.0	94.5 12.6	69.7 12.6	0.0 0.0	

8.7 1990 GENERAL AVIATION AIRCRAFT NONHIERARCHICAL CAPABILITY GROUPS  
BY AIRCRAFT TYPE

PAGE 2 OF 3

AIRCRAFT TYPE	NONHIERARCHICAL CAPABILITY GROUPS										NO GROUP	TOTAL
	1	2	3	4	5	6	7	8				
2 ENGINES 13+ SEATS	ESTIMATE	0	9	572	416	717	1,211	1,202	399	0	1,289	
	% STD. ERROR	0.0	77.0	11.8	10.6	9.4	3.0	3.1	11.1	0.0	0.0	
	ROW %	0.0	0.7	44.4	32.3	55.6	93.9	93.3	31.0	0.0	0.0	
	COLUMN %	0.0	0.1	0.6	0.4	3.8	3.3	3.5	1.6	0.0	0.5	
TURBOPROP OTHER	ESTIMATE	4	0	126	245	90	165	165	86	169	499	
	% STD. ERROR	197.8	0.0	21.0	11.1	26.6	15.5	15.5	28.0	12.9	0.0	
	ROW %	0.8	0.0	25.3	49.1	18.0	33.1	33.1	17.2	33.9	0.0	
	COLUMN %	0.0	0.0	0.1	0.2	0.5	0.4	0.5	0.3	0.2	0.2	
FIXED WING - TURBOJET												
2 ENGINES	ESTIMATE	14	134	262	3,259	3,979	3,964	3,843	3,028	38	4,305	
	% STD. ERROR	63.7	38.3	21.5	3.5	1.6	1.9	2.3	4.1	81.4	0.0	
	ROW %	0.3	3.1	6.1	75.7	92.4	92.1	89.3	70.3	0.9	1.6	
	COLUMN %	0.1	1.5	0.3	3.3	20.9	10.7	11.1	11.9	0.0	0.0	
TURBOJET OTHER	ESTIMATE	18	2	108	357	391	335	335	307	38	586	
	% STD. ERROR	97.8	170.5	33.2	11.2	10.1	11.2	11.2	12.2	38.8	0.0	
	ROW %	3.1	0.3	18.4	60.9	66.7	57.2	57.2	52.4	6.5	0.0	
	COLUMN %	0.1	0.0	0.1	0.4	2.1	0.9	1.0	1.2	0.0	0.2	
ROTORCRAFT												
PISTON	ESTIMATE	5	0	23	1,117	6	99	0	18	4,550	5,757	
	% STD. ERROR	115.4	0.0	60.3	16.0	207.1	49.8	0.0	120.1	3.9	0.0	
	ROW %	0.1	0.0	0.4	19.4	0.1	1.7	0.0	0.3	79.0	0.0	
	COLUMN %	0.0	0.0	0.0	1.1	0.0	0.3	0.0	0.1	4.5	2.2	
TURBINE	ESTIMATE	513	56	482	3,217	1,506	566	472	453	947	4,620	
	% STD. ERROR	27.4	88.6	26.8	5.8	11.4	13.9	10.9	12.7	16.1	0.0	
	ROW %	11.1	1.2	10.4	69.6	32.6	12.3	10.2	9.8	20.5	0.0	
	COLUMN %	3.7	0.6	0.5	3.2	7.9	1.5	1.4	1.8	0.9	1.7	

8.7 1990 GENERAL AVIATION AIRCRAFT NONHIERARCHICAL CAPABILITY GROUPS  
BY AIRCRAFT TYPE

PAGE 3 OF 3

AIRCRAFT TYPE	NONHIERARCHICAL CAPABILITY GROUPS								NO GROUP	TOTAL
	1	2	3	4	5	6	7	8		
OTHER AIRCRAFT	85	0	32	151	15	10	6	0	10,321	10,562
	55.8	0.0	84.3	29.2	113.4	152.8	232.6	0.0	0.6	0.0
	0.8	0.0	0.3	1.4	0.1	0.1	0.1	0.0	97.7	
	0.6	0.0	0.0	0.2	0.1	0.0	0.0	0.0	10.2	4.0
ALL AIRCRAFT	13,879	9,110	98,710	99,421	19,070	37,054	34,697	25,468	100,898	266,344
	5.3	6.5	1.2	1.5	2.8	2.1	2.2	2.9	1.2	
	5.2	3.4	37.1	37.3	7.2	13.9	13.0	9.6	37.9	

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

NONHIERARCHICAL CAPABILITY GROUPS KEY

- 1 - LOCALIZER (LOC)
- 2 - LOCALIZER, MARKER BEACON (MB)
- 3 - LOCALIZER, MARKER BEACON, GLIDE SLOPE (GS)
- 4 - LONG RANGE NAVIGATION (LRNAV) - INCLUDES (LORAN C VFR ONLY; IFR NAVIGATION; IFR APPROACH & OMEGA)
- 5 - RADAR ALTIMETER (RA)
- 6 - MICROWAVE LANDING SYSTEM (MLS)
- 7 - LOC, MB, GS, MLS
- 8 - LRNAV, MLS, MODE\_S, THUNDERSTORM DETECTION EQUIPMENT, WEATHER RADAR, TCAS\_I, TCAS\_II

NO GROUP - NO REGULATORY AVIONICS



8.8 1990 GENERAL AVIATION AIRCRAFT NONHIERARCHICAL CAPABILITY GROUPS  
BY AGE OF AIRCRAFT

PAGE 1 OF 2

AGE OF AIRCRAFT	NONHIERARCHICAL CAPABILITY GROUPS									
	1	2	3	4	5	6	7	8	NO GROUP	TOTAL
0 - 4 YEARS	ESTIMATE	54	3,074	4,946	1,464	2,532	2,407	1,694	5,515	12,175
	% STD. ERROR	71.1	13.3	11.0	12.3	9.2	9.3	12.3	10.6	6.3
	ROW %	0.4	25.2	40.6	12.0	20.8	19.8	13.9	45.3	4.6
5 - 9 YEARS	ESTIMATE	342	7,166	8,556	3,799	6,498	6,344	5,055	6,116	19,736
	% STD. ERROR	38.6	7.6	6.6	7.5	6.4	6.5	7.3	9.4	4.6
	ROW %	1.7	36.3	43.4	19.2	32.9	32.1	25.6	31.0	7.4
10 - 14 YEARS	ESTIMATE	1,712	31,453	26,514	6,873	12,809	12,167	8,652	15,400	61,563
	% STD. ERROR	16.0	3.3	3.7	6.3	4.7	4.8	6.1	5.6	2.3
	ROW %	4.7	51.1	43.1	11.2	20.8	19.8	14.1	25.0	23.1
15 - 19 YEARS	ESTIMATE	1,714	17,831	15,896	3,177	5,987	5,647	3,869	12,385	40,153
	% STD. ERROR	16.3	4.6	4.9	9.9	7.3	7.5	9.6	6.2	3.0
	ROW %	4.3	44.4	39.6	7.9	14.9	14.1	9.6	30.8	15.1
20 - 24 YEARS	ESTIMATE	1,640	16,721	15,981	2,471	4,637	4,296	2,932	12,958	40,154
	% STD. ERROR	16.0	4.7	4.9	10.4	7.8	7.9	10.4	6.1	3.0
	ROW %	4.1	41.6	39.8	6.2	11.5	10.7	7.3	32.3	15.1
25 - 29 YEARS	ESTIMATE	1,212	11,116	10,500	651	1,752	1,598	1,301	8,761	26,094
	% STD. ERROR	19.2	5.7	6.1	22.8	14.1	14.5	16.6	7.1	3.8
	ROW %	4.6	42.6	40.2	2.5	6.7	6.1	5.1	33.6	9.8
	ESTIMATE	11.4	13.3	11.3	3.4	4.7	4.6	5.1	8.7	9.8
	% STD. ERROR									
	ROW %									

8.8 1990 GENERAL AVIATION AIRCRAFT NONHIERARCHICAL CAPABILITY GROUPS  
BY AGE OF AIRCRAFT

PAGE 2 OF 2

AGE OF AIRCRAFT	NONHIERARCHICAL CAPABILITY GROUPS									
	1	2	3	4	5	6	7	8	NO GROUP	TOTAL
30 - 34 YEARS	ESTIMATE	1,161	1,110	6,399	7,678	1,050	702	421	7,250	19,784
	% STD. ERROR	19.0	18.6	7.4	7.1	19.4	22.6	30.0	7.4	4.0
35+ YEARS	ESTIMATE	2,774	1,480	4,788	9,215	438	384	337	32,448	46,457
	% STD. ERROR	10.6	16.7	7.9	5.4	27.2	29.6	30.8	2.1	1.6
TOTAL	ESTIMATE	13,879	9,110	98,710	99,421	37,054	34,697	25,468	100,898	266,344
	% STD. ERROR	5.3	6.5	1.2	1.5	2.1	2.2	2.9	1.2	
	ROW %	5.2	3.4	37.1	37.3	13.9	13.0	9.6	37.9	
	COLUMN %									

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

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- 6 - MICROWAVE LANDING SYSTEM (MLS)
- 7 - LOC, MB, GS, MLS
- 8 - LRNAV, MLS, MODE\_S, THUNDERSTORM DETECTION EQUIPMENT, WEATHER RADAR, TCAS\_I, TCAS\_II

NO GROUP - NO REGULATORY AVIONICS

8.9 1990 GENERAL AVIATION AIRCRAFT NONHIERARCHICAL CAPABILITY GROUPS  
BY TOTAL FLIGHT HOUR GROUPS

PAGE 1 OF 2

TOTAL FLIGHT HOUR GROUPS		NONHIERARCHICAL CAPABILITY GROUPS								NO GROUP	TOTAL
		1	2	3	4	5	6	7	8		
1 - 49 HOURS	ESTIMATE	5,877	2,320	15,740	16,933	1,198	2,866	2,244	1,606	32,925	63,048
	% STD. ERROR	10.2	13.2	4.9	4.7	15.7	11.2	12.4	15.3	3.1	2.2
	ROW %	6.1	3.7	25.0	26.9	1.9	4.5	3.6	4.5	52.2	23.7
	COLUMN %	27.9	25.5	15.9	17.0	6.3	7.7	6.5	6.3	32.6	
50 - 99 HOURS	ESTIMATE	3,018	2,350	23,300	25,411	2,489	4,993	4,735	3,525	17,403	55,958
	% STD. ERROR	11.6	13.4	3.9	3.8	11.5	8.3	8.5	10.1	4.7	2.4
	ROW %	5.4	4.2	41.6	45.4	4.4	8.9	8.5	6.3	31.1	21.0
	COLUMN %	21.7	25.8	23.6	25.6	13.1	13.5	13.6	13.8	17.2	
100 - 149 HOURS	ESTIMATE	1,445	1,323	19,464	19,227	2,747	7,004	680	5,428	6,444	34,583
	% STD. ERROR	16.9	17.5	4.3	4.3	10.2	6.8	7.0	8.0	7.7	3.1
	ROW %	4.2	3.8	56.3	55.6	7.9	20.3	19.3	15.7	18.6	13.0
	COLUMN %	10.4	14.5	19.7	19.3	14.4	18.9	19.3	21.3	6.4	
150 - 199 HOURS	ESTIMATE	721	511	10,820	9,381	1,692	4,982	4,803	3,555	2,899	17,871
	% STD. ERROR	24.2	26.9	5.9	6.2	12.7	8.0	8.1	9.4	12.3	4.6
	ROW %	4.0	3.1	60.5	52.5	9.5	27.9	26.9	20.1	16.2	6.7
	COLUMN %	5.2	6.0	11.0	9.4	8.9	13.4	13.8	14.1	2.9	
200 - 249 HOURS	ESTIMATE	403	609	7,078	6,341	1,977	4,514	4,212	3,214	2,571	13,371
	% STD. ERROR	34.8	26.0	7.4	7.5	11.3	8.2	8.5	9.8	12.3	5.2
	ROW %	3.0	4.6	52.9	47.4	14.8	33.8	31.5	24.0	19.2	5.0
	COLUMN %	2.9	6.7	7.2	6.4	10.4	12.2	12.1	12.6	2.5	
250 - 299 HOURS	ESTIMATE	188	10	3,520	3,341	1,356	2,144	2,108	1,698	1,261	6,702
	% STD. ERROR	48.9	153.7	10.9	10.1	12.9	11.1	11.2	12.3	18.4	7.5
	ROW %	2.8	0.1	52.5	49.3	20.2	32.0	31.5	25.3	18.8	2.5
	COLUMN %	1.4	0.1	3.6	3.4	7.1	5.8	6.1	6.7	1.2	

8.9 1990 GENERAL AVIATION AIRCRAFT NONHIERARCHICAL CAPABILITY GROUPS  
BY TOTAL FLIGHT HOUR GROUPS

PAGE 2 OF 2

TOTAL FLIGHT HOUR GROUPS		NONHIERARCHICAL CAPABILITY GROUPS								NO GROUP	TOTAL
		1	2	3	4	5	6	7	8		
300 - 349 HOURS	ESTIMATE	344	296	3,206	3,360	1,460	2,346	2,272	1,667	1,827	7,494
	% STD. ERROR	39.3	39.6	11.3	10.1	12.5	10.8	10.9	12.5	15.0	7.1
	ROW %	4.6	3.9	42.8	44.8	19.5	31.3	30.3	22.2	24.4	2.8
350 - 399 HOURS	ESTIMATE	278	125	2,098	2,708	1,329	1,199	1,173	920	912	5,130
	% STD. ERROR	42.8	59.9	14.5	11.4	13.9	13.7	13.9	14.7	23.1	8.8
	ROW %	5.4	2.4	40.9	52.8	25.9	23.4	22.9	17.9	17.8	1.9
400 - 449 HOURS	ESTIMATE	85	73	1,979	2,396	1,080	1,483	1,470	1,249	896	4,412
	% STD. ERROR	53.2	80.6	14.9	11.3	12.7	11.9	12.0	12.9	22.5	9.1
	ROW %	1.9	1.7	44.9	54.3	24.5	33.6	33.3	28.3	20.3	1.7
450+ HOURS	ESTIMATE	1,833	406	6,558	5,549	3,354	4,196	3,956	2,291	5,388	18,465
	% STD. ERROR	16.0	31.2	7.8	7.3	7.2	6.2	6.4	8.7	8.6	4.2
	ROW %	9.9	2.2	35.5	30.1	18.2	22.7	21.4	12.4	29.2	6.9
INACTIVE	ESTIMATE	1,703	1,071	5,152	5,128	433	1,369	1,100	485	28,190	39,264
	% STD. ERROR	15.1	18.3	8.1	8.9	22.8	14.2	14.9	23.7	3.3	2.7
	ROW %	4.3	2.7	13.1	13.1	1.1	3.5	2.8	1.2	71.8	14.7
TOTAL	ESTIMATE	13,879	9,110	98,710	99,421	19,070	37,054	34,697	25,468	100,898	266,344
	% STD. ERROR	5.3	6.5	1.2	1.5	2.8	2.1	2.2	2.9	1.2	1.2
	ROW %	5.2	3.4	37.1	37.3	7.2	13.9	13.0	9.6	37.9	37.9

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

NONHIERARCHICAL CAPABILITY GROUPS KEY

- 1 - LOCALIZER (LOC)
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  - 5 - RADAR ALTIMETER (RA)
  - 6 - MICROWAVE LANDING SYSTEM (MLS)
  - 7 - LOC, MB, GS, MLS
  - 8 - LRNAV, MLS, MODE\_S, THUNDERSTORM DETECTION EQUIPMENT, WEATHER RADAR, TCAS\_I, TCAS\_II
- NO GROUP - NO REGULATORY AVIONICS

8.10 1990 GENERAL AVIATION AIRCRAFT NONHIERARCHICAL CAPABILITY GROUPS  
BY PRIMARY USE

PAGE 1 OF 2

PRIMARY USE	NONHIERARCHICAL CAPABILITY GROUPS									
	1	2	3	4	5	6	7	8	NO GROUP	TOTAL
EXECUTIVE	ESTIMATE	72	355	3,072	7,768	7,674	8,904	8,703	6,645	283
	% STD. ERROR	63.9	29.6	10.1	4.6	3.9	3.8	3.9	4.6	39.8
	ROW %	0.6	3.1	26.9	68.1	67.3	78.1	76.3	58.2	2.5
BUSINESS	COLUMN %	0.5	3.9	3.1	7.8	40.2	24.0	25.1	26.1	0.3
	ESTIMATE	955	1,323	24,675	21,767	4,505	12,008	11,253	8,842	3,165
	% STD. ERROR	19.7	17.7	3.5	3.8	7.9	4.8	4.9	5.8	11.0
PERSONAL	ROW %	2.6	3.6	66.6	58.7	12.2	32.4	30.4	23.9	8.5
	COLUMN %	6.9	14.5	25.0	21.9	23.6	32.4	32.4	34.7	3.1
	ESTIMATE	7,394	5,275	49,757	51,222	2,926	8,895	8,174	6,650	48,960
INSTRUCTIONAL	% STD. ERROR	7.3	8.7	2.3	2.4	10.8	6.3	6.5	7.4	2.1
	ROW %	5.7	4.1	38.3	39.4	2.2	6.8	6.3	5.1	37.6
	COLUMN %	53.3	57.9	50.4	51.5	15.3	24.0	23.6	26.1	48.5
AERIAL APPLICATION	ESTIMATE	2,573	437	8,591	4,094	282	850	733	396	7,904
	% STD. ERROR	13.5	33.2	6.9	10.2	36.0	21.3	22.8	29.9	6.9
	ROW %	12.4	2.1	41.5	19.8	1.4	4.1	3.5	1.9	38.2
AERIAL OBSERVATION	COLUMN %	18.5	4.8	8.7	4.1	1.5	2.3	2.1	1.6	7.8
	ESTIMATE	25	50	229	907	148	163	141	128	6,572
	% STD. ERROR	85.1	94.0	41.4	18.5	34.8	40.7	43.4	43.1	4.3
	ROW %	0.3	0.7	3.0	11.9	1.9	2.1	1.8	1.7	85.9
	COLUMN %	0.2	0.5	0.2	0.9	0.8	0.4	0.4	0.5	6.5
	ESTIMATE	345	128	2,215	3,010	182	297	277	257	1,797
	% STD. ERROR	36.7	57.9	14.0	11.7	34.2	32.7	34.1	35.4	14.5
	ROW %	6.0	2.2	38.5	52.3	3.2	5.2	4.8	4.5	31.2
	COLUMN %	2.5	1.4	2.2	3.0	1.0	0.8	0.8	1.0	1.8
	ESTIMATE	11,408	3,908	11,052	2,800	13,059	130,059	130,059	130,059	130,059
	% STD. ERROR	11.0	2.8	13.9	48.8	20,716	20,716	20,716	20,716	20,716
	ROW %	2.8	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1
	COLUMN %	2.2	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9
	ESTIMATE	7,651	3,390	6,572	7,651	7,651	7,651	7,651	7,651	7,651
	% STD. ERROR	4.3	2.9	4.3	4.3	4.3	4.3	4.3	4.3	4.3
	ROW %	4.3	2.9	4.3	4.3	4.3	4.3	4.3	4.3	4.3
	COLUMN %	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9
	ESTIMATE	5,754	1,797	5,754	5,754	5,754	5,754	5,754	5,754	5,754
	% STD. ERROR	8.3	14.5	8.3	8.3	8.3	8.3	8.3	8.3	8.3
	ROW %	8.3	14.5	8.3	8.3	8.3	8.3	8.3	8.3	8.3
	COLUMN %	2.2	1.8	2.2	2.2	2.2	2.2	2.2	2.2	2.2

8.10 1990 GENERAL AVIATION AIRCRAFT NONHIERARCHICAL CAPABILITY GROUPS  
BY PRIMARY USE

PAGE 2 OF 2

PRIMARY USE	NONHIERARCHICAL CAPABILITY GROUPS								NO GROUP	TOTAL
	1	2	3	4	5	6	7	8		
OTHER WORK	94 ESTIMATE & STD. ERROR ROW & COLUMN & 0.7	97 70.3 5.3 1.1	123 46.4 6.8 0.1	404 26.6 22.2 0.4	40 40.9 2.2 0.2	32 60.7 1.8 0.1	32 60.7 1.8 0.1	10 74.1 0.6 0.0	1,320 15.8 72.6 1.3	1,818 13.2 0.7
COMPUTER AIR CARRIER	11 ESTIMATE & STD. ERROR ROW & COLUMN & 0.1	69 42.8 4.7 0.8	755 19.2 51.4 0.8	538 21.9 36.6 0.5	258 21.4 17.6 1.4	691 13.5 47.0 1.9	622 15.0 42.3 1.8	56 79.7 3.8 0.2	109 46.8 7.4 0.1	1,469 11.4 0.6
AIR TAXI	543 ESTIMATE & STD. ERROR ROW & COLUMN & 3.9	163 52.1 2.5 1.8	3,277 9.8 49.6 3.3	3,265 9.6 49.5 3.3	1,950 11.6 29.5 10.2	3,030 9.3 45.9 8.2	2,955 9.4 44.8 8.5	1,683 12.9 25.5 6.6	512 28.2 7.8 0.5	6,601 6.5 2.5
OTHER USE	201 ESTIMATE & STD. ERROR ROW & COLUMN & 1.4	177 47.8 3.6 1.9	1,177 16.1 23.7 1.2	1,818 13.3 36.6 1.8	742 16.2 14.9 3.9	908 14.4 18.3 2.5	812 14.7 16.3 2.3	546 19.0 11.0 2.1	2,145 13.9 43.2 2.1	4,970 8.3 1.9
INACTIVE	1,703 ESTIMATE & STD. ERROR ROW & COLUMN & 12.3	1,071 18.3 2.7 11.8	5,152 8.1 13.1 5.2	5,128 8.9 13.1 5.2	433 22.8 1.1 2.3	1,369 14.2 3.5 3.7	1,100 14.9 2.8 3.2	485 23.7 1.2 1.9	28,190 3.3 71.8 27.9	39,264 2.7 14.7
TOTAL	13,879 ESTIMATE & STD. ERROR ROW & 5.2	9,110 6.5 3.4	98,710 1.2 37.1	99,421 1.5 37.3	19,070 2.8 7.2	37,054 2.1 13.9	34,697 2.2 13.0	25,468 2.9 9.6	100,898 1.2 37.9	266,344

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.



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NONHIERARCHICAL CAPABILITY GROUPS KEY

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- 7 - LOC, MB, GS, MLS
- 8 - LRNAV, MLS, MODE\_S, THUNDERSTORM DETECTION EQUIPMENT, WEATHER RADAR, TCAS\_I, TCAS\_II

NO GROUP - NO REGULATORY AVIONICS

8.11 1990 GENERAL AVIATION AIRCRAFT NONHIERARCHICAL CAPABILITY GROUPS  
BY REGION OF BASED AIRCRAFT

PAGE 1 OF 2

REGION	NONHIERARCHICAL CAPABILITY GROUPS									
	1	2	3	4	5	6	7	8	NO GROUP	TOTAL
ALASKAN	ESTIMATE	615	240	1,454	4,030	146	126	108	4,401	9,373
	% STD. ERROR	23.6	42.5	16.3	9.5	38.1	42.3	40.5	8.4	5.8
	ROW %	6.6	2.6	15.5	43.0	1.6	1.3	1.2	47.0	3.5
CENTRAL	COLUMN %	4.4	2.6	1.5	4.1	0.4	0.4	0.4	4.4	
	ESTIMATE	467	418	4,567	4,702	2,332	2,067	1,586	6,351	14,601
	% STD. ERROR	30.2	32.8	9.3	8.9	11.6	12.0	14.1	8.0	5.2
EASTERN	ROW %	3.2	2.9	31.3	32.2	16.0	14.2	10.9	43.5	5.5
	COLUMN %	3.4	4.6	4.6	4.7	6.3	6.0	6.2	6.3	
	ESTIMATE	1,843	1,096	12,781	13,157	5,378	5,042	3,919	9,787	30,652
GREAT LAKES	% STD. ERROR	16.0	18.7	5.5	5.3	7.7	7.9	8.9	6.2	3.4
	ROW %	6.0	3.6	41.7	42.9	17.5	16.4	12.8	31.9	11.5
	COLUMN %	13.3	12.0	12.9	13.2	14.5	14.5	15.4	9.7	
NEW ENGLAND	ESTIMATE	2,501	1,703	16,144	17,035	6,463	5,957	4,304	19,003	47,059
	% STD. ERROR	12.9	15.4	4.9	4.7	6.9	7.1	8.4	4.4	2.7
	ROW %	5.3	3.6	34.3	36.2	13.7	12.7	9.1	40.4	17.7
NEW ENGLAND	COLUMN %	18.0	18.7	16.4	17.1	17.4	17.2	16.9	18.8	
	ESTIMATE	559	400	4,190	4,667	1,312	1,240	1,053	3,141	10,156
	% STD. ERROR	26.4	33.2	10.0	9.3	16.1	16.4	17.9	11.4	6.3
NEW ENGLAND	ROW %	5.5	3.9	41.3	46.0	12.9	12.2	10.4	30.9	3.8
	COLUMN %	4.0	4.4	4.2	4.7	3.5	3.6	4.1	3.1	

8.11 1990 GENERAL AVIATION AIRCRAFT NONHIERARCHICAL CAPABILITY GROUPS  
BY REGION OF BASED AIRCRAFT

PAGE 2 OF 2

REGION	NONHIERARCHICAL CAPABILITY GROUPS								NO GROUP	TOTAL	
	1	2	3	4	5	6	7	8			
NORTHWEST MOUNTAIN	ESTIMATE	1,165	972	9,270	9,969	1,534	2,217	1,996	1,607	11,762	27,460
	% STD. ERROR	19.9	21.2	6.5	6.2	13.5	11.9	12.3	14.0	5.9	3.7
	ROW %	4.2	3.5	33.8	36.3	5.6	8.1	7.3	5.9	42.8	10.3
	COLUMN %	8.4	10.7	9.4	10.0	8.0	6.0	5.8	6.3	11.7	10.3
SOUTHERN	ESTIMATE	2,733	1,216	19,011	19,384	3,614	8,854	8,649	6,565	13,525	43,676
	% STD. ERROR	12.4	17.9	4.4	4.4	8.3	5.8	5.9	6.9	5.4	2.8
	ROW %	6.3	2.8	43.5	44.4	8.3	20.3	19.8	15.0	31.0	16.4
	COLUMN %	19.7	13.3	19.3	19.5	19.0	23.9	24.9	25.8	13.4	16.4
SOUTHWESTERN	ESTIMATE	1,734	1,277	12,660	12,050	2,954	5,438	5,022	3,549	14,088	35,015
	% STD. ERROR	16.2	17.9	5.5	5.4	9.1	7.0	7.2	8.8	5.3	3.2
	ROW %	5.0	3.6	36.2	34.4	8.4	15.5	14.3	10.1	40.2	13.1
	COLUMN %	12.5	14.0	12.8	12.1	15.5	14.7	14.5	13.9	14.0	13.1
WESTERN-PACIFIC	ESTIMATE	2,349	1,909	18,224	14,658	3,514	4,749	4,424	2,946	18,886	48,276
	% STD. ERROR	13.0	14.9	4.5	4.9	8.3	7.4	7.7	9.6	4.5	2.6
	ROW %	4.9	4.0	37.7	30.4	7.3	9.8	9.2	6.1	39.1	18.1
	COLUMN %	16.9	21.0	18.5	14.7	18.4	12.8	12.8	11.6	18.7	18.1
TOTAL	ESTIMATE	13,879	9,110	98,710	99,421	19,070	37,054	34,697	25,468	100,898	266,344
	% STD. ERROR	5.3	6.5	1.2	1.5	2.8	2.1	2.2	2.9	1.2	1.2
	ROW %	5.2	3.4	37.1	37.3	7.2	13.9	13.0	9.6	37.9	13.9

NOTE: ROW AND COLUMN SUMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

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NO GROUP - NO REGULATORY AVIONICS

## APPENDIX A

### METHODOLOGY FOR THE 1990 GENERAL AVIATION ACTIVITY AND AVIONICS SURVEY

#### 1. OVERVIEW

##### 1.1 Purpose of Survey

The purpose of the General Aviation Activity and Avionics (GAAA) Survey is to provide the Federal Aviation Administration (FAA) with information on the activity and avionics of the general aviation fleet. The information obtained from the survey enables the FAA to monitor the general aviation fleet so that it can, among other activities, anticipate and meet demand for National Airspace System (NAS) facilities and services, assess the impact of regulatory changes on the general aviation fleet, and implement measures to assure the safe operation in the airspace of all aircraft.

##### 1.2 Background

Prior to the current survey method, the FAA used the Aircraft Registration Eligibility, Identification, and Activity Report, AC Form 8050-73, in its data collection program on general aviation activity and avionics. The form was sent annually to all owners of civil aircraft in the U.S., and served two purposes: (1) Part 1 was the mandatory aircraft registration revalidation form, and (2) Part 2 was voluntary and applied to general aviation aircraft only, asking questions on the owner-discretionary characteristics of the aircraft such as flight hours, avionics equipment, base location, and use. This information was used by the FAA to estimate aircraft activity.

In 1978, the FAA replaced AC Form 8050-73 with a new system: Part 1 was replaced by a triennial registration program; and Part 2 was replaced by the General Aviation Activity and Avionics Survey, FAA Form 1800-54, shown in Figure A.1. The GAAA Survey was to be conducted annually, based on a statistically selected sample of general aviation aircraft, requesting the same type of information as Part 2 of AC Form 8050-73. The first survey took place in 1978, collecting data on the 1977 general aviation fleet. The 1990 statistics in this report were derived from the fourteenth survey, which took place in 1991. Benefits resulting from the new system of data collection include quicker processing of the results, improved data quality, and a considerable savings in time and money to both the public and the Federal Government.

Figure A.1 SURVEY QUESTIONNAIRE

Form Approved OMB NO 7-20-0080

GENERAL AVIATION ACTIVITY AND AVIONICS SURVEY (As of December 31, 1990)	
<p>This report is authorized by Section 311 of the Federal Aviation Act of 1958. This information collection conforms to legal and administrative standards established by the Federal Government to assure confidential treatment of statistical information. The information you provide will be used only for statistical purposes and will not be published or released in any form that would divulge specific information reported by an individually identifiable respondent.</p>	
<p><b>INSTRUCTIONS:</b> Please answer questions for the aircraft at right. Mail the completed questionnaire in the enclosed, postage-paid envelope to:</p> <p style="text-align: right;">Federal Aviation Administration Attention: Executive Resource Associates, Inc. Call No. 91013 Arlington, Virginia 22202</p>	
<p>2. Did you operate this aircraft in 1990 primarily as an air carrier or lease this aircraft to such an air carrier (FAR Parts 121 or 127 operator)?</p> <p><input type="checkbox"/> YES (Do not complete the rest of this form. Please return form to address shown above in the enclosed, postage-paid envelope.)</p> <p><input type="checkbox"/> NO (Please answer the remaining questions. This form should be completed for all general aviation aircraft and aircraft operated under FAR Part 135, commuter and air taxi.)</p>	
3. What were the total lifetime airframe hours as of December 31, 1990?	LIFETIME HRS
4. In what State was this aircraft based as of December 1990?	STATE
5. Was the aircraft flown in Calendar Year 1990?	<input type="checkbox"/> YES <input type="checkbox"/> NO (Skip to Question 13)
6. How many hours did this aircraft fly in Calendar Year 1990? (Include estimated rental and leased hours.)	HRS FLOWN
7. What percent of the hours entered in Question 6 did this aircraft fly in each of the following use categories?	PERCENT OF HRS FLOWN
EXECUTIVE CORPORATE TRANSPORTATION—Company flying with a professional crew	a. %
BUSINESS TRANSPORTATION—Individual use of an aircraft for business transportation	b. %
PERSONAL RECREATION—Flying for personal reasons (Excludes business transportation)	c. %
INSTRUCTIONAL—Flying under the supervision of a flight instructor (Excludes proficiency flying)	d. %
AERIAL APPLICATION—Agriculture, health, forestry, cloud seeding, firefighting, insect control, etc.	e. %
AERIAL OBSERVATION—Aerial mapping, photography, survey, patrol, fish spotting, search and rescue, hunting, highway traffic advisory, sightseeing (not FAR Part 135), etc.	f. %
OTHER WORK USE—Construction work (not FAR Part 135), helicopter hoist, parachuting, aerial advertising, towing gliders, etc.	g. %
COMMUTER AIR CARRIER—Performs under FAR Part 135, at least five scheduled round trips per week or carries mail	h. %
AIR TAXI—FAR Part 135 passenger and cargo operations (Excludes commuter air carrier)	i. %
What was the average revenue in dollars per hour for this aircraft in air taxi operation?	j. \$
OTHER—Experimentation, R&D, testing, government demonstrations, air shows, air racing, etc.	k. %
TOTAL (a+b+c+d+e+f+g+h+i+j+k)	100%
8. Was the aircraft rented or leased to others in 1990?	<input type="checkbox"/> YES <input type="checkbox"/> NO
If "YES" for how many rental or leased hours?	a. HOURS
9. What was this aircraft's average rate of fuel consumption in gallons per hour? (If none, enter "NONE" and go to Question 10.)	GALLONS PER HOUR
Estimate the percent of each fuel and grade used	
Jet Fuel	b. %
Aviation Fuel	
80 Octane	c. %
100 Octane	d. %
100 Octane Low Lead	e. %
Automotive Gasoline	f. %
Propane	g. %
TOTAL (b+c+d+e+f+g)	100%
What was the average fuel cost per gallon?	h. \$
10. In 1990, what percent of the hours did this aircraft fly under the following conditions?	PERCENT OF HRS FLOWN
DAY FLYING	
a. Visual Meteorological Condition (VMC)	a. %
b. Instrument Meteorological Condition (IMC)	b. %
NIGHT FLYING	
c. Visual Meteorological Condition (VMC)	c. %
d. Instrument Meteorological Condition (IMC)	d. %
TOTAL (a+b+c+d)	100%
<p>11. Was the aircraft flown on an Instrument Flight Plan in 1990? <input type="checkbox"/> YES <input type="checkbox"/> NO</p> <p>If "YES" how many hours were flown?</p>	
<p>12. How many landings, including water, touch and go landings, did this aircraft perform in each of the following categories in Calendar Year 1990?</p> <p>LOCAL FLIGHT a. _____</p> <p>CROSS COUNTRY FLIGHT b. _____</p>	
<p>13. Does this aircraft have an electrical system to operate avionics equipment?</p> <p>a. <input type="checkbox"/> YES b. <input type="checkbox"/> NO</p> <p>Does this aircraft have an Emergency Locator Transmitter?</p> <p>c. <input type="checkbox"/> YES d. <input type="checkbox"/> NO</p>	
<p>Check all boxes that reflect this aircraft's current avionics equipment capabilities</p> <p><b>COMMUNICATIONS EQUIPMENT</b></p> <p>360 Channels (50 KHz Channel Spacing)</p> <p>e. <input type="checkbox"/> PORTABLE f. <input type="checkbox"/> FIXED</p> <p>720 Channels or more (25 KHz Channel Spacing)</p> <p>g. <input type="checkbox"/> PORTABLE h. <input type="checkbox"/> FIXED</p> <p>HF Radio _____</p> <p>More than One Communications System _____</p> <p>Cockpit Voice Recorder _____</p> <p>No Communications Equipment _____</p> <p><b>TRANSPONDER EQUIPMENT</b></p> <p>Mode A Transponder (TSO-C74-b-c) _____</p> <p>Mode C Transponder (Altitude Encoding) _____</p> <p>Mode S Transponder (TSO-C112) _____</p> <p>TCAS I _____</p> <p>TCAS II _____</p> <p>No Transponder Equipment _____</p> <p><b>NAVIGATION EQUIPMENT</b></p> <p>VOR Receiver</p> <p>100 Channels</p> <p>s. <input type="checkbox"/> PORTABLE t. <input type="checkbox"/> FIXED</p> <p>200 Channels</p> <p>u. <input type="checkbox"/> PORTABLE v. <input type="checkbox"/> FIXED</p> <p>More than One VOR Receiver _____</p> <p>Automatic Direction Finder (ADF) _____</p> <p>Distance Measuring Equipment (DME) _____</p> <p>Area Navigation Equipment (RNAV) _____</p> <p>Long Range Navigation Equipment (LRNAV) _____</p> <p>LORAN C, VFR only</p> <p>IFR Navigation _____</p> <p>IFR Approach _____</p> <p>OMEGA-VLF _____</p> <p>Other (Doppler, INS, Other) _____</p> <p>Radar Altimeter _____</p> <p>Weather Radar _____</p> <p>Thunderstorm Detection Equipment _____</p> <p>No Navigation Equipment _____</p> <p><b>PRECISION APPROACH EQUIPMENT</b></p> <p>Localizer _____</p> <p>Marker Beacon _____</p> <p>Glide Slope _____</p> <p>Microwave Landing System _____</p> <p>No Precision Approach Equipment _____</p> <p><b>GUIDANCE AND CONTROL EQUIPMENT</b></p> <p>Flight Director _____</p> <p>Electronic Flight Instrument System (EFIS) _____</p> <p>Flight Management System _____</p> <p>Autopilot-Axis Controls</p> <p>Longitudinal _____</p> <p>Vertical _____</p> <p>Lateral _____</p> <p>Approach Mode _____</p> <p>Autoland _____</p> <p>Flight Data Recorder _____</p> <p>No Guidance and Control Equipment _____</p>	
<p>14. COMMENTS—Your comments are invited to assist us in improving this survey. Please use the reverse side of this form.</p>	
<p>Agency Display of Estimated Burden of the General Aviation Activity and Avionics Survey—The public reporting burden for this collection of information is estimated to average 12 minutes per response. If you wish to comment on the accuracy of the estimate or to make suggestions for reducing this burden, please direct your comments to FAA and the OMB at the following addresses:</p> <p>U.S. DOT Federal Aviation Administration Statistical Analysis Branch, AMS-420 800 Independence Avenue, SW Washington, DC 20591</p> <p>Office of Management and Budget Paperwork Reduction Project (2120-0080) Washington, DC 20503</p>	

## 2. SURVEY COVERAGE

### 2.1 Aircraft

The General Aviation Activity and Avionics Survey (GAAA) covers, through a stratified probability sample, all general aviation aircraft registered in the United States. The term, "general aviation," as used in this survey, is defined as all aircraft in the U.S. civil air fleet except those operated under Federal Aviation Regulations (FAR) Parts 121 and 127. FAR Part 121, as modified by Special Federal Aviation Regulation 38 (SFAR-38), governs air carriers carrying passengers and cargo for hire and conducting scheduled and charter operations with aircraft having a seating capacity of more than 30 seats and/or a payload capacity of more than 7,500 pounds. Thus, general aviation includes aircraft operated under:

- Part 91: General operating and flight rules.
- Part 125: Certification and operations: Airplanes having a seating capacity of 20 or more passengers or a maximum payload capacity of 6,000 pounds or more (but not for hire).
- Part 133: Rotorcraft external load operations.
- Part 135: Air taxi operators and commercial operators.
- Part 137: Agricultural aircraft operations.

Since the term "general aviation" is not always defined in the same way from aviation publication to aviation publication, it is often a source of confusion to users of general aviation statistics. The point on which the various definitions disagree is under what categorization (air carrier or general aviation) to place air taxis and commuter air carriers operating under FAR Part 135. The GAAA Survey has always used the above definition for general aviation, which includes the air taxis, commuter air carriers and air travel clubs. Thus, it is essential for the user to understand thoroughly the definition of general aviation as it applies to the sources he or she is using so that proper comparisons of data can be made.

Certain aircraft meeting the general aviation criteria, though, have been excluded from the survey. This group consists of aircraft registered to dealers, aircraft in the process of being sold or with registration pending, and aircraft for which not enough information was available to categorize them properly for sampling purposes.

General aviation offers such varied services as air taxi, aircargo, industrial, agricultural, business, personal, recreational, instructional, research, patrol, and sport flying. General aviation aircraft range in complexity from simple gliders and balloons to four engine turbojets.

## 2.2 Geographic

The sample survey conducted by the FAA covers general aviation aircraft registered with the United States Aircraft Registry as of December 31, 1989. Over 99 percent of these aircraft are registered to owners living in the 50 states; Washington, D.C.; Puerto Rico; and other U.S. territories, which include American Samoa, Guam, and the Virgin Islands.<sup>1</sup>

## 2.3 Content

The survey questionnaire, FAA Form 1800-54 shown previously in Figure A.1, requests the aircraft owner to provide the following information on the sampled aircraft's characteristics and uses for various periods:

- 1) hours by use, IFR hours, percentage of hours flown in Instrument Meteorological Conditions (IMC) and Visual Meteorological Conditions (VMC) during the day and evening, fuel consumption grade and cost, and number of local and cross country landings for the entire calendar year 1990;
- 2) airframe hour reading and the aircraft's base location as of December 31, 1990; and
- 3) avionics equipment currently on board the aircraft.

## 3. SURVEY METHOD

The survey data were collected by mailing the questionnaire to the owners of the sampled aircraft in three mailings. The first mailing in February 1991 covered all 29,778 aircraft in the sample and had a response rate of 47.4 percent as shown in Table A.1. This accounted for approximately 74 percent of the total responses to the survey. The second mailing conducted in April 1991 included only those aircraft in the sample that had not yet responded. The second mailing had a response rate of 19.8 percent, which accounted for approximately 20 percent of the total responses to the survey. The third mailing conducted in May 1991 was sent to the owners of the sampled aircraft who had not responded to the first or second mailings as of a specified date. The third mailing produced a response rate of 11.7 percent, or approximately 6 percent of the total responses to the survey. The valid survey responses resulted in an overall a response rate of 63.7 percent.

TABLE A.1 SUMMARY OF RESPONSE INFORMATION

PHASE	VALID SAMPLE SIZE	# RESPONSES	RESPONSE RATE	%TOTAL RESPONSE
1st Mailing	29,778	14,120	47.4	74.4
2nd Mailing	18,742	3,719	19.8	19.6
3rd Mailing	9,716	1,138	11.7	6.0
TOTAL:	29,778	18,977	63.7	100.0

<sup>1</sup>Source: FAA Aircraft Registration Master File as of December 31, 1989.



Each of the three mailings was accompanied by a cover letter, shown respectively in Figures A.2, A.3, and A.4 at the back of this Appendix.

#### 4. SAMPLE DESIGN

##### 4.1 Sample Frame and Size

The FAA Mike Monroney Aeronautical Center in Oklahoma City maintains the Aircraft Registration Master File, which is the official record of registered civil aircraft in the United States. The sample frame, the list of aircraft from which the sample was selected, was provided by this organization based upon criteria specified by AMS-420.

Several changes which occurred between the 1977 and 1978 survey cycles impacted the population, frame and, ultimately, the survey results. In January 1978, the FAA implemented a new procedure, known as triennial revalidation, for maintaining its master file. Instead of requiring all aircraft owners to revalidate and update their aircraft registration annually, FAA only required revalidation for those aircraft owners who had not contacted the FAA registry for three years. This less frequent updating of the master file affected its accuracy and representativeness. Two major consequences for the survey results are discussed below.

- 1) The accuracy of owners' addresses has deteriorated. The percentage of questionnaires returned by the post office has ranged from 8 to 13 percent since 1987. Postal returns for 1990 were 10.8 percent, down slightly from 1989's 11.0 percent. Prior to the implementation of the 1978 FAA procedures, the postal return rate averaged 2 percent. From 1977 to 1982, following the implementation of the 1978 FAA procedures, the post office returns more than tripled from 2 percent to 6.8 percent. The high post office return rate partially explains the lower survey response rates experienced since 1977.
- 2) The master file contained a residue of aircraft which, under the old revalidation system, would have been deregistered and purged from the file but now remain under the new system. Consequently, the population counts were inflated resulting in artificially large increases in the estimates of the number of active general aviation aircraft from 1977 to 1978, and from 1978 to 1979.

Also during this period, the entire Aircraft Registration System was installed on a new computer system. At the same time, FAA modified many of the updating and processing procedures. It is quite possible that these changes affected the registration file.

Finally, new legislation required two formerly ineligible categories of aircraft to be registered with the U.S. Registry.

From 1977 to 1978, the definition of a registered general aviation aircraft changed to include the two new groups:

- 1) aircraft owned by individual citizens of foreign countries who are permanent residents of the United States, and
- 2) aircraft owned by non-U.S. corporations which are organized and doing business under U.S. law (as long as the aircraft are based and used primarily in the United States).

It is estimated that these aircraft constitute less than one half of one percent of the general aviation fleet.

These changes thus affected the contents of the Aircraft Registration Master File and, consequently, the GAAA Survey results. While it is difficult to quantify the effects of these changes, FAA estimates that they caused the survey results to overestimate aircraft population and hours flown by five percent or less.

The sample frame is made up of all aircraft identified as general aviation in the master file (according to the definition in Section 2.1), with the following exceptions:

- 1) aircraft registered to dealers;
- 2) aircraft with "Sale Reported" or "Registration Pending" appearing in the record instead of the owner's name;
- 3) aircraft with a known, inaccurate owner's address; and
- 4) aircraft with missing state of registration, aircraft make-model-series code, or aircraft type information.

For calendar year 1990, the sample frame consisted of 266,344 general aviation aircraft records from which 29,778 records were sampled, yielding a 11.2 percent sample. Table A.2 shows, by aircraft type, the distribution of the sample compared to that of the population. This clearly demonstrates the disproportionality of the sample to the population, an intended result of the sample design to gain efficiency and to control errors.

#### 4.2 Description of Sample Design

The sample design employed was a stratified, systematic design from a random start. The sample was selected from a two-way stratified frame matrix. The two stratification criteria were:

- 1) state or territory of aircraft registration, and
- 2) a variable called the make-model index, constructed from a combination of the aircraft type and the Service Difficulty Reporting (SDR) aircraft manufacturer/model group.

TABLE A.2 SAMPLE AND POPULATION DISTRIBUTION BY AIRCRAFT TYPE

TYPE	APPROXIMATE POPULATION	SAMPLE SIZE	SAMPLE AS % OF POPULATION
<b>Fixed Wing - Piston</b>			
1 Engine: 1-3 Seats	88,005	10,311	11.7
1 Engine: 4+ Seats	119,379	8,189	6.9
2 Engine: 1-6 Seats	17,600	1,909	10.8
2 Engine: 7+ Seats	8,892	1,591	17.9
Piston: Other	182	98	53.8
<b>Fixed Wing - Turboprop</b>			
2 Engine: 1-12 Seats	4,623	765	16.5
2 Engine: 13+ Seats	1,289	374	29.0
Turboprop: Other	499	201	40.3
<b>Fixed Wing - Turbojet</b>			
2 Engine	4,305	804	18.7
Turbojet: Other	586	192	32.8
<b>Rotorcraft</b>			
Piston	5,802	1,505	25.9
Turbine	4,620	808	17.5
<b>Other Aircraft</b>	<u>10,562</u>	<u>3,031</u>	28.7
<b>TOTAL:</b>	266,344	29,778	11.2

The 54 levels of the state criterion and the 393 levels of the make-model index yielded a matrix of 54 by 393 or 21,222 cells (strata) among which the frame was divided for sampling.

The FAA's primary requirement was for estimates of average annual flight hours per aircraft, necessitating optimal determination of sample sizes based on flight hour variation by state and by make-model index, and not on population. Hence, the sample was not proportional to size, and a sampling fraction was determined for each cell with a non-zero population. Sampling was then performed systematically from a random start within individual cells, yielding a final sample size of 29,778 general aviation aircraft.

Initially, each aircraft in the sample was given a weight which was the inverse of its cell's sampling fraction, and which corresponded to the number of aircraft in the sample frame represented by that aircraft. When all responses to the survey were tallied, each weight was adjusted according to the response rate for the cell, counting an aircraft for which no survey questions were answered as a non-respondent, and an aircraft for which at least one question was answered as a respondent.

The weight adjustment is described as follows:

- 1) non-respondents' weights were changed to zero; and
- 2) the weights of all responding aircraft were adjusted uniformly by dividing the initial weight by the response rate for the cell.

This method of weight adjustment has several attributes. It actually incorporates the response rates into the final weights and simplifies estimation procedures.

#### 4.3 Error

Errors associated with estimates derived from sample survey results fall into two categories: sampling and non-sampling errors.<sup>2</sup> Sampling errors occur because the estimates are based on a sample--not the entire population.

Non-sampling errors arise from a number of sources such as non-response, inability or unwillingness of respondents to provide correct information, differences in interpretation of questions, mistakes in recording or coding the data obtained, and others. The following sections discuss the two types of errors.

#### 4.4 Sampling Error

In a designed survey, the sampling error associated with an estimate is generally unknown, but a measurable quantity, known as the standard error, is often used as a guide to the magnitude of sampling error. The standard error measures the variation which would occur among the estimates from all possible samples of the same design from the same population. It measures the precision with which an estimate approximates the average result of all possible samples or the result of a survey in which all elements of the population were sampled.

Through sample design techniques, the statistician can control the sizes of standard errors on a few key variables, known as design variables, in the survey. The design variables in the GAAA Survey are the average annual hours flown per aircraft by aircraft type, by aircraft manufacturer/model characteristics, and by state of aircraft registration. The sample is designed to produce standard errors on these variables at levels specified by the FAA. No controls are placed on the standard errors of the non-design variables.

Thus, every estimate resulting from a sample survey, whether it be for a design or non-design variable, has sampling error associated with it. The user of survey results must consider sampling error along with the point estimate itself when making inferences or drawing conclusions about the sample population. A large standard error relative to an estimate indicates lack of precision and, inversely, a small standard error indicates precision. To facilitate the comparison of estimates and their errors, the tables in this publication display

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<sup>2</sup>Standards for Discussion and Presentation of Errors in Data, U.S. Department of Commerce, Bureau of the Census, (Washington, DC, 1974), pp. 11-14.

standard errors for all estimated quantities. In most cases, the tables contain the percent standard error, which is the standard error multiplied by 100 and divided by the corresponding estimate. The paragraphs below explain the proper interpretation and use of the errors.

An estimate and its standard error make it possible to construct an interval estimate with the prescribed confidence that the interval will include the average value of the estimate from all possible samples of the population. Table A.3 below shows selected interval widths and their corresponding confidence.

TABLE A.3 CONFIDENCE OF INTERVAL ESTIMATES

WIDTH OF INTERVAL	APPROXIMATE CONFIDENCE THAT INTERVAL INCLUDES AVERAGE VALUE
1 Standard error	68%
2 Standard error	95%
3 Standard error	99%

For the most part, the measure of precision presented in this report is the percent standard error (% s.e.). As explained above, this statistic is merely the ratio of the standard error to the estimate times 100 (to convert the fraction to a percent). In addition to immediately communicating the relative precision of the estimate, it allows ready comparison of the survey's performance across variables. The following is an example of how to use the % s.e.: from Table 2.1, a 95 percent confidence interval for the number of active rotorcraft with piston engines would be 3,459 plus or minus 2 (5.3/100)(3,459) or the interval between 3,092 and 3,826. One would say that the number of active rotorcraft with piston engines lies somewhere between 3,092 and 3,826 with 95 percent confidence. Another way of expressing this is that we are highly confident (95 percent) that the number of active rotorcraft with piston engines is within plus or minus 2(5.3) percent, or 10.6 percent of 3,459.

#### 4.5 Non-Sampling Error

Non-sampling error can be reduced through survey design, although the amount of reduction is difficult, if not impossible, to quantify in any given design. There are, however, various techniques which can limit non-sampling error.

Several of these techniques were incorporated into the design of the GAAA Survey and are itemized below:

- 1) A second mailing and a prompting (reminder) letter were sent to non-respondents in addition to the original mailing in order to improve the response rate, since a low response rate is a major cause of non-sampling error. A total of 63.7 percent of the sampled aircraft responded to at least one question of the survey. Although the 1990

response rate marks a decrease from the 80 percent response rate achieved in 1977 (the first year of the survey) it does represent an increase from 1988's response rate of 55.5 percent. Possible causes for the less than 100 percent sample rate response include:

- o The deterioration of the currency of aircraft owners' addresses in the Aircraft Registration Master File, the sample frame. This caused a gradual increase in the percentage of questionnaires returned undelivered by the postmaster.
- o Repeated sampling of aircraft in two and possibly three or four successive years. Due to the design of the sample to achieve specified precision in estimates for states and manufacturer/model groups of aircraft, it is impossible to avoid sampling some of the same aircraft in consecutive years. Owners of such aircraft may have been less willing to respond in 1990 than in previous years.

Table A.4 reveals the responses by aircraft type. Last year, there were two aircraft types with a response rate less than 40 percent, the "Other" piston group (with 29.1 percent) and the fixed wing, two engine turboprop with 13 or more seats (with 38.9 percent). This year, there was only one aircraft type with a response rate less than 40 percent, the "Other" piston group, with 36.7 percent.

- 2) To assure the owners of the confidentiality of their responses, the back side of the questionnaire cover letter informed them that:

"The FAA has determined that the information you provide in this survey is exempt from public disclosure under the Freedom of Information Act."<sup>3</sup>

- 3) Comprehensive editing procedures insured the accuracy of the data transcription to machine readable form and the internal consistency of responses.
- 4) The official and most accurate source of information available on the general aviation fleet, the FAA Aircraft Registration Master File, was used as the sampling frame.

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<sup>3</sup>See Figure A.2.

**TABLE A.4 RESPONSE RATE BY AIRCRAFT TYPE**

<u>AIRCRAFT TYPE</u>	<u>RESPONSE RATE</u>
<b>Fixed Wing - Piston</b>	
1 Engine: 1-3 Seats	65.9%
1 Engine: 4+ Seats	67.6
2 Engine: 1-6 Seats	63.0
2 Engine: 7+ Seats	49.2
Piston: Other	36.7
<b>Fixed Wing - Turboprop</b>	
2 Engine: 1-12 Seats	66.7
2 Engine: 13+ Seats	63.1
Turboprop: Other	52.2
<b>Fixed Wing - Turbojet</b>	
2 Engine	69.2
Turbojet: Other	68.2
<b>Rotorcraft</b>	
Piston	52.0
Turbine	54.2
<b>Other Aircraft</b>	61.6
<b>OVERALL</b>	<b>63.7%</b>



U.S. Department  
of Transportation  
**Federal Aviation  
Administration**

800 Independence Ave., S.W.  
Washington, D.C. 20591

February 1991

Dear Aircraft Owner:

You are one of the 30,000 general aviation aircraft owners selected at random to participate in the 1990 General Aviation Activity and Avionics Survey. In such a survey, your input is vital because your response will have a significant impact on the overall estimates of aircraft hours flown, miles flown, fuel consumption, and avionics capability for the entire general aviation fleet.

The information you provide is used in a variety of ways. It helps to determine the impact of proposed changes to some of our regulations and to pinpoint potential safety problems. The information also helps to forecast our future work force and new facility requirements (such as runways, landing aids, etc.). These are just a few examples of the uses we make of your response to the survey.

Enclosed is a questionnaire requesting information for calendar year 1990. *After reading the instructions and the information on the back of this letter, please answer all questions for the aircraft identified on the form.*

I urge you to complete the questionnaire and use the enclosed envelope to mail it in today. Your prompt response will eliminate the need for additional followup contacts.

If you have any questions or need further assistance, please call Mr. Shung-Chai Huang at (202) 267-9943 or Ms. Patricia Beardsley at (202) 267-8032.

We thank you for your participation.

Sincerely,

A handwritten signature in black ink, appearing to read "Steve Hopkins".

Steve Hopkins  
Manager, Statistical Analysis Branch,  
AMS-420

Enclosure



## ***The 1990 General Aviation Activity and Avionics Survey***

---

### **Why does the FAA collect this information?**

For the past 11 years, the FAA has conducted an annual sample survey to collect statistical information on the use and characteristics of the general aviation fleet. The information collected helps the FAA understand more about general aviation activities, assess the impact of general aviation on the National Airspace System, and determine its need for traffic facilities and services. These data are used by the Federal, state, and local governments, as well as by private industries and individuals, for safety analysis, planning, forecasting, research and development. We have made a concerted effort to minimize the number of questions we ask you, while still meeting the needs of the government and the public for aviation information.

### **Are the survey responses kept confidential?**

***Absolutely!!!*** This annual information collection conforms to legal and administrative standards established by the Federal Government to assure confidential treatment of statistical information. The information you have provided in the past decade has never been published or released in any form that would reveal specific information reported by any individually identifiable respondent.

### **Why was I selected for this survey?**

This survey covers general aviation aircraft and aircraft operated by air taxis and commuter air carriers. The survey sample is randomly selected, based upon the FAA Aircraft Registry as of December 31, 1990. The Registry shows you as the registrant of this aircraft on that date. Your aircraft is one of approximately 30,000 general aviation aircraft selected to be surveyed. Since the survey sample is randomly selected, it is possible that your aircraft may be selected in successive years or that more than one of your aircraft may be selected this year. This can happen if the number of aircraft of the type you own has a small representation in the general aviation fleet. If more than one of your aircraft is selected for this year's survey, you will receive a questionnaire for each aircraft under separate cover. Please answer all questions for the aircraft identified on the top right-hand corner of the questionnaire. If you cannot provide a precise answer to any questions, please make your best estimate.

### **What should I do if . . .**

- ➔ ***IF*** you are no longer in possession of this aircraft but were the registered owner on December 31, 1990, try to answer all the questions. If your aircraft was sold prior to December 31, 1990, please forward this mail to the new owner for response.
- ➔ ***IF*** your aircraft, for whatever reasons, was not in use during calendar year 1990, ***answer questions 2-5 and 13 and return the questionnaire to FAA.*** The fact that your aircraft was not flown during the year is just as important as the fact that it was flown.
- ➔ ***IF*** your aircraft was operated by an airline (FAR Part 121 or 127 operator), ***indicate this in question 2 and return the questionnaire to FAA.***
- ➔ ***IF*** your aircraft was operated primarily by another person or company (e.g. leased), obtain the necessary information from the operator, or forward this mail to the person or firm for response.
- ➔ ***IF*** your aircraft was stolen, destroyed, lost or donated to an organization, or otherwise not in your possession, and you have not yet notified the FAA Aircraft Registry, do so immediately by writing to:

**Aircraft Registration Branch, AVN-450  
7500 South MacArthur Blvd.  
Oklahoma City, OK 73125.**

The signature of the aircraft owner of record is required to make any changes to the aircraft registration record. If you have any questions regarding the registration of your aircraft, please call (405) 680-3116.



U.S. Department  
of Transportation  
**Federal Aviation  
Administration**

800 Independence Ave., S.W.  
Washington, D.C. 20591

March 1991

Dear Aircraft Owner:

We need your input!

In February, we sent you a General Aviation Activity and Avionics Survey Questionnaire to compile 1990 aircraft activity and avionics information. As of this date, we have not received your response.

In case our first mailing never reached you or was misplaced, we have enclosed another identical questionnaire with a return, postage-paid envelope for your convenience. *I urge you to read the instructions on the back page of this letter, complete the questionnaire, and use the enclosed envelope to return it to us today.* If you have any questions or need further assistance, please contact Mr. Shung-Chai Huang at (202) 267-9943 or Ms. Patricia Beardsley at (202) 267-8032. If your response is already in the mail, we thank you for your cooperation.

We look forward to receiving your response so that we can know more about the general aviation flying and, thereby, serve you better. We thank you for your participation.

Sincerely,

A handwritten signature in black ink, appearing to read "Steve Hopkins".

Steve Hopkins  
Manager, Statistics Analysis Branch,  
AMS-420

Enclosure

## *The 1990 General Aviation Activity and Avionics Survey*

---

### **Why does the FAA collect this information?**

For the past 11 years, the FAA has conducted an annual sample survey to collect statistical information on the use and characteristics of the general aviation fleet. The information collected helps the FAA understand more about general aviation activities, assess the impact of general aviation on the National Airspace System, and determine its need for traffic facilities and services. These data are used by the Federal, state, and local governments, as well as by private industries and individuals, for safety analysis, planning, forecasting, research and development. We have made a concerted effort to minimize the number of questions we ask you, while still meeting the needs of the government and the public for aviation information.

### **Are the survey responses kept confidential?**

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- ➔ **IF** your aircraft, for whatever reasons, was not in use during calendar year 1990, *answer questions 2-5 and 13 and return the questionnaire to FAA. The fact that your aircraft was not flown during the year is just as important as the fact that it was flown.*
- ➔ **IF** your aircraft was operated by an airline (FAR Part 121 or 127 operator), *indicate this in question 2 and return the questionnaire to FAA.*
- ➔ **IF** your aircraft was operated primarily by another person or company (e.g. leased), obtain the necessary information from the operator, or forward this mail to the person or firm for response.
- ➔ **IF** your aircraft was stolen, destroyed, lost or donated to an organization, or otherwise not in your possession, and you have not yet notified the FAA Aircraft Registry, do so immediately by writing to:

Aircraft Registration Branch, AVN-450  
7500 South MacArthur Blvd.  
Oklahoma City, OK 73125.

The signature of the aircraft owner of record is required to make any changes to the aircraft registration record. If you have any questions regarding the registration of your aircraft, please call (405) 680-3116.



U.S. Department  
of Transportation  
**Federal Aviation  
Administration**

888 Independence Ave., S.W.  
Washington, D.C. 20591

April 1991

Dear Aircraft Owner:

This is your last opportunity to participate in the 1989 General Aviation Activity and Avionics Survey. We need your help.

In February and March, we sent you a general aviation activity and avionics survey questionnaire to compile the 1990 aircraft activity and avionics information. As of this date, we have not received your response.

In case the previous mailings never reached you or were misplaced, we have enclosed another identical questionnaire with a return, postage-paid envelope for your convenience. *I urge you to read the instructions and the survey information on the back of this letter, complete the questionnaire, and use the enclosed envelope to return it to us today.* If you have any questions or need further assistance, please call Mr. Shung-Chai Huang at (202) 267-9943 or Ms. Patricia Beardsley at (202) 267-8032. If your response is already in the mail, we thank you for your cooperation.

We look forward to receiving your response so that we can know more about the general aviation flying and, thereby, serve you better.

Sincerely,

A handwritten signature in black ink, appearing to read "Steve Hopkins".

Steve Hopkins  
Manager, Statistics Analysis Branch,  
AMS-420

Enclosure

Figure A.4 Third Cover Letter Page 2  
***The 1990 General Aviation Activity and Avionics Survey***

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**Why does the FAA collect this information?**

For the past 11 years, the FAA has conducted an annual sample survey to collect statistical information on the use and characteristics of the general aviation fleet. The information collected helps the FAA understand more about general aviation activities, assess the impact of general aviation on the National Airspace System, and determine its need for traffic facilities and services. These data are used by the Federal, state, and local governments, as well as by private industries and individuals, for safety analysis, planning, forecasting, research and development. We have made a concerted effort to minimize the number of questions we ask you, while still meeting the needs of the government and the public for aviation information.

**Are the survey responses kept confidential?**

***Absolutely!!!*** This annual information collection conforms to legal and administrative standards established by the Federal Government to assure confidential treatment of statistical information. The information you have provided in the past decade has never been published or released in any form that would reveal specific information reported by any individually identifiable respondent.

**Why was I selected for this survey?**

This survey covers general aviation aircraft and aircraft operated by air taxis and commuter air carriers. The survey sample is randomly selected, based upon the FAA Aircraft Registry as of December 31, 1990. The Registry shows you as the registrant of this aircraft on that date. Your aircraft is one of approximately 30,000 general aviation aircraft selected to be surveyed. Since the survey sample is randomly selected, it is possible that your aircraft may be selected in successive years or that more than one of your aircraft may be selected this year. This can happen if the number of aircraft of the type you own has a small representation in the general aviation fleet. If more than one of your aircraft is selected for this year's survey, you will receive a questionnaire for each aircraft under separate cover. Please answer all questions for the aircraft identified on the top right-hand corner of the questionnaire. If you cannot provide a precise answer to any questions, please make your best estimate.

**What should I do if . . .**

- ➔ ***IF*** you are no longer in possession of this aircraft but were the registered owner on December 31, 1990, try to answer all the questions. If your aircraft was sold prior to December 31, 1990, please forward this mail to the new owner for response.
- ➔ ***IF*** your aircraft, for whatever reasons, was not in use during calendar year 1990, ***answer questions 2-5 and 13 and return the questionnaire to FAA.*** The fact that your aircraft was not flown during the year is just as important as the fact that it was flown.
- ➔ ***IF*** your aircraft was operated by an airline (FAR Part 121 or 127 operator), ***indicate this in question 2 and return the questionnaire to FAA.***
- ➔ ***IF*** your aircraft was operated primarily by another person or company (e.g. leased), obtain the necessary information from the operator, or forward this mail to the person or firm for response.
- ➔ ***IF*** your aircraft was stolen, destroyed, lost or donated to an organization, or otherwise not in your possession, and you have not yet notified the FAA Aircraft Registry, do so immediately by writing to:

Aircraft Registration Branch, AVN-450  
7500 South MacArthur Blvd.  
Oklahoma City, OK 73125.

The signature of the aircraft owner of record is required to make any changes to the aircraft registration record. If you have any questions regarding the registration of your aircraft, please call (405) 680-3116.

## APPENDIX B

SDR AIRCRAFT GROUP NAME  
FAA MANUFACTURER/MODEL CODES

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SDR NAME	FAA CODE	SDR NAME	FAA CODE	SDR NAME	FAA CODE	SDR NAME	FAA CODE	SDR NAME	FAA CODE	SDR NAME	FAA CODE
ADAMS A50S	0050103	AIRPTSA	1850114	AMTR	JM101	05601UN	AMTRATFALCXP	05658MR	AMTRPTFALCON	05658UG	
ADAMS A50S	0050105	AIRPTSA	1850112	AMTR	KV3	0560887	AMTRAV400	05613EU	AMTRPUGW4	05647H6	
ADAMS A50S	0050101	AIRSPC18	0440104	AMTR	LGTHZR	0564573	AMTRAWACO	05613VL	AMTRQCCHLNGR	05676V6	
ADAMS AB	0050100	AIRTRCAT300	0390104	AMTR	MARKEN	0563802	AMTRBA1918	05611CH	AMTRRBB1	056137V	
ADAMSTT11	8950104	AIRTRCAT300	0390103	AMTR	MENZIE	13027HJ	AMTRBIWT11	05613LA	AMTRREPANTHR	05676K6	
AERORSJ2	5500604	AIRTRCAT300	0390101	AMTR	OSPNEY	05612RY	AMTRBNBELNCA	0566041	AMTRRRH3	056033X	
AEROSP262	6380502	AIRTRCAT400	0390202	AMTR	P51X	1690462	AMTRBSCONCPT	1240104	AMTRRUAREZE	0569084	
AEROSP262	6380526	AIRTRCAT400	0390204	AMTR	PITTS	7221024	AMTRBTBARNET	05602VE	AMTRSAPLAYBY	86502M1	
AEROSP360	8680662	AIRTRCAT400	0390203	AMTR	PROGRS	056120Y	AMTRCPRATS	05612WV	AMTRSGTOLP	8660104	
AEROSP601	8680661	AIRTRCAT500	0390303	AMTR	RAIDER	05613A3	AMTRCYKARATO	056125D	AMTRSGF9	4700216	
AEROSPAS355	8680807	ALCAIRARGO	0530102	AMTR	RANS	0561654	AMTRCZCOZY	05613R8	AMTRTCATAC	05613GZ	
AEROSPAS355	8680806	AMD FALC10	2730101	AMTR	RB5	05616Q9	AMTRDCCD1	05612TF	AMTRTJMR1	05601F8	
AEROSPAS355	8680812	AMD FALC20	2730150	AMTR	REPDA	0566171	AMTRDNBD2	05601GX	AMTRTSSEHAWK	05613QQ	
AEROSPAS355	8680810	AMD FALC20	2720304	AMTR	RICE	05601YQ	AMTRDSALPHA	05613GU	AMTRTTTA1	0565383	
AEROSPAS355	8680805	AMD FALC20	2720306	AMTR	RS15	05647AL	AMTRRECLASER	6560105	AMTRVDOWL	0562154	
AEROSPAT42	8680920	AMD FALC20	2720302	AMTR	S14	0566157	AMTRRES300	05675EK	AMTRVPVAMP IR	05647QT	
AEROSPAS316	8680207	AMD FALC20	2730103	AMTR	SCMIDT	0562542	AMTRRETMAXAIR	0564408	AMTRVRSUNBRD	05612BB	
AEROSPAS316	8680515	AMD FALC20	2720303	AMTR	SEPTR1	05613PE	AMTRWEA230	05613LX	AMTRVSVS1	05601ET	
AEROSPAS316	8680605	AMD FALC50	2730106	AMTR	SKYSTC	05613HH	AMTRGTTT1	05663CK	AMTRVSWAG	05655YX	
AEROSPAS316	8680615	AMEGLEEAGLET	0650104	AMTR	SNPIP	05613FM	AMTRHIAL112	5621012	AMTRWIGULL	05613VG	
AEROSPAS319	8680607	AMEGLEEAGLET	0650102	AMTR	SNOOP2	05613D2	AMTRHMS2C	05612HN	AMTRWMSKYTGR	05613YX	
AEROSPAS365	8680669	AMEGLEEAGLET	0650106	AMTR	SOPWH	0560873	AMTRHMTJ5	0561328	AMTRWRF4U	0566446	
AEROSPAS365	8680668	AMEGLEEAGLET	0650108	AMTR	SPAD7	05608A7	AMTRJBBIANS	05613BR	AMTRWTFDA	9790161	
AERPEGM100S	0200506	AMERANS36	0580104	AMTR	SPTBPL	05655D1	AMTRKBTWNSTR	05613QS	AMTRWXCUBEA	05611B6	
AETNA 2SA	0220102	AMERAPPILGRM	0620104	AMTR	STITS	865048G	AMTRLASPEC	05601SU	AMTRYLWNR	0561275	
AGUSTA205	1181414	AMTR 3A	05601BP	AMTR	SUKHOI	1152913	AMTRLEKABAT	056125Q	ANDGRN14	0740102	
AGUSTA206AGS	0260302	AMTR 503	13027JM	AMTR	TKM	4220120	AMTRLEKITTEN	056123Z	ARACFTSPORT	0840102	
AGUSTA206AGS	0260301	AMTR 830	0566042	AMTR	TORO	05655E9	AMTRLLITTING	05612QS	ARACFTSPORT	0840102	
AGUSTA206AGS	0260120	AMTR A4C	7710110	AMTR	TSUN	0561253	AMTRLMALCO	05611GL	ARCRNEH37	8141617	
AGUSTA206AGS	0260112	AMTR A44	05637P8	AMTR	ULMAT	05612RF	AMTRLWLAC	05613VU	ARCRNEH37	8142801	
AGUSTA206AGS	0260109	AMTR AEROCA	0190931	AMTR	VAN	0561383	AMTRFLZDUTCH	0562898	ARCTICS1A	1850216	
AGUSTA206AGS	0320102	AMTR AEROCT	05616HK	AMTR	VECTY	05612DD	AMTRMFF2	0562581	ARCTICS1A	1850212	
AIRBLDPRNCX	3930308	AMTR AIRSRK	9570776	AMTR	VICKER	05613CE	AMTRMHR2	05611DD	ARCTICS1A	1850210	
AIRMECAL	0400108	AMTR AN1	70401RZ	AMTR	VIGNIT	0560960	AMTRMIMIG15	056129C	ARCTICS1A	1850202	
AIRMECAL	0400113	AMTR AOP	0881210	AMTR	W11	05653C6	AMTRMJSLOVIN	056123A	ARCTICS1A	1850208	
AIRMECAL	0400302	AMTR AVID	05616GA	AMTR	WD6	056013R	AMTRMVSANAC	05608T7	ARCTICS1A	1850206	
AIRMECAL	0400102	AMTR B10	0566605	AMTR	WDSK	05647Y3	AMTRMSF85	05613KQ	ARCTICS1A	1850204	
AIRPTSA	1850102	AMTR B2R	056134H	AMTR	XTC	9570728	AMTRNANORD	6380102	ARCTICS1B1	1850304	
AIRPTSA	1850122	AMTR C2	0563781	AMTR	YAK	05616FC	AMTRNCLNCAIR	05613B5	ARCTICS1B1	1850302	
AIRPTSA	1850120	AMTR DEHUNN	1302635	AMTR	YAK	05612KL	AMTRNCLNCAIR	05612ML	ARCTICS1B1	1850308	
AIRPTSA	1850120	AMTR DK1	0564406	AMTR	ZIA	0130240	AMTRNCLNCAIR	056129G	ARCTICS1B2	1850303	
AIRPTSA	1850104	AMTR DRFTR	05675WR	AMTR	ZPYSPT	05646BN	AMTRNCLNCAIR	05613KS	ARWHWTC50101	0820122	
AIRPTSA	1850104	AMTR DS1	056136N	AMTR	ZUNI	0130230	AMTRPEFLSTR	05644KB	AROCARAROCAR	0100102	
AIRPTSA	1850106	AMTR F1156	5910310	AMTR	ZUNI	0130202	AMTRPIAX3	05637C9	ARONCA15	0191202	
AIRPTSA	1850106	AMTR GEM260	05613FX	AMTR	ZUNI	0130202	AMTRPIAX3	7001213	ARONCA15	0191204	
AIRPTSA	4570620	AMTR GOOD	1301577	AMTR	ZUNI	0130202	AMTRPIAX3	05637C2	ARONCA58	0191006	
AIRPTSA	1850110	AMTR GRLAKE	39122BB	AMTR	ZUNI	0130202	AMTRPIAX3	05604T4	ARONCA58	0191002	
AIRPTSA	4570624	AMTR HOLSER	05612TB	AMTR	ZUNI	0130202	AMTRPIAX3	05604UQ	ARONCA58	0191008	
AIRPTSA	1850108	AMTR HP11	0564752	AMTR	ZUNI	0130202	AMTRPIAX3	05604T8	ARONCA58	0191010	
AIRPTSA	1850118	AMTR HUMMER	0564475	AMTR	ZUNI	0130202	AMTRPIAX3	056125C	ARONCA65	0190910	

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ARONCA65	0190914	BALWKSFIREFY	1050101	BEECH 17	1150558	BEECH 23	1151215	BEECH 45	1152014
ARONCA65	0190918	BALWKSFIREFY	1050109	BEECH 17	1150518	BEECH 23	1151226	BEECH 45	1152010
ARONCA65	0190106	BALWKSFIREFY	10501A9	BEECH 17	1150538	BEECH 23	1151212	BEECH 45	1152008
ARONCA65	0190906	BALWKSFIREFY	1050100	BEECH 17	1150508	BEECH 23	1151242	BEECH 45	1152002
ARONCA65	0190908	BALWKSFIREFY	1050103	BEECH 17	1150534	BEECH 23	1151254	BEECH 45	1152012
ARONCA65	0190902	BALWKSFIREFY	1050110	BEECH 17	1150564	BEECH 23	1151252	BEECH 45	1152013
ARONCA65	0190802	BALWKSFIREFY	1050107	BEECH 18	1151007	BEECH 23	1151208	BEECH 50	1152532
ARONCAC2	0190102	BARNADD31	1030104	BEECH 18	1151019	BEECH 23	1151216	BEECH 50	1152510
ARONCAC2	0190104	BARTTLC13	1050102	BEECH 18	1151044	BEECH 23	1151253	BEECH 50	1152518
ARONCAC3	0190302	BBAVIA11	0191112	BEECH 18	1151011	BEECH 23	1151202	BEECH 50	1152530
ARONCAC3	0190304	BBAVIA11	0191102	BEECH 18	1150902	BEECH 300	1152930	BEECH 50	1152536
ARONCAF	0190702	BBAVIA11	0191104	BEECH 18	1150602	BEECH 33	1151408	BEECH 50	1152520
ARONCALB	0190604	BBAVIA11	0191106	BEECH 18	1151004	BEECH 33	1151432	BEECH 50	1152524
ARONCALC	0190606	BBAVIA11	0191108	BEECH 18	1151016	BEECH 33	1151406	BEECH 50	1152502
ARONCAM	0190504	BBAVIA402	2110204	BEECH 18	1151040	BEECH 33	1151435	BEECH 50	1152515
AUGSBUK630	05604MR	BBAVIA7	21101P3	BEECH 18	1150204	BEECH 33	1151410	BEECH 50	1152534
AVIANWCLIPR	0900108	BBAVIA7	21101NS	BEECH 18	1151010	BEECH 33	1151424	BEECH 50	1152512
AVIANWFLCON	0900102	BBAVIA7	21101NN	BEECH 18	1151021	BEECH 33	1151423	BEECH 50	1152516
AVIANWAGNOM	0900110	BBAVIA7	21101PY	BEECH 18	1150909	BEECH 33	1151422	BEECH 50	1152526
AVIANWSKYHWK	0900104	BBAVIA7	2110108	BEECH 18	1150702	BEECH 33	1151402	BEECH 50	1152522
AYRES S2	0143006	BBAVIA7	2110126	BEECH 18	1151022	BEECH 33	1151425	BEECH 55	1152729
AYRES S2	7630203	BBAVIA7	21101MW	BEECH 18	1150911	BEECH 33	1151404	BEECH 55	1152732
AYRES S2	0970105	BBAVIA7	2110130	BEECH 18	1150202	BEECH 35	1151532	BEECH 55	1152702
AYRES S2	0143022	BBAVIA7	2110120	BEECH 18	1151042	BEECH 35	1151508	BEECH 55	1152708
AYRES S2	0970215	BBAVIA7	2110124	BEECH 18	1151006	BEECH 35	1151528	BEECH 55	1152706
AYRES S2	8380202	BBAVIA7	21101PT	BEECH 18	1151020	BEECH 35	1151504	BEECH 55	1152704
AYRES S2	0143012	BBAVIA7	2110106	BEECH 18	1151008	BEECH 35	1151514	BEECH 55	1152730
AYRES S2	0970107	BBAVIA7	21101NG	BEECH 18	1150904	BEECH 35	1151530	BEECH 56	1152738
AYRES S2	0970100	BBAVIA7	2110102	BEECH 18	1150912	BEECH 35	1151546	BEECH 56	1152736
AYRES S2	6380206	BBAVIA7	21101PH	BEECH 18	1151001	BEECH 35	1151522	BEECH 58	1152744
AYRES S2	0970202	BBAVIA7	21101N8	BEECH 18	1151014	BEECH 35	1151548	BEECH 58	1152746
AYRES S2	0970101	BBAVIA7	2110116	BEECH 18	1151026	BEECH 35	1151502	BEECH 58	1152740
AYRES S2	8380204	BBAVIA7	21101PK	BEECH 18	1151012	BEECH 35	1151524	BEECH 60	1153605
AYRES S2	0970210	BBAVIA8	2110612	BEECH 18	1151013	BEECH 35	1151506	BEECH 60	1153602
AYRES S2	0143010	BBAVIA8	1220803	BEECH 18	1150913	BEECH 35	1151526	BEECH 60	1153604
AYRES S2	0970106	BCRAFTHB	1110102	BEECH 18	1151024	BEECH 35	1151512	BEECH 65	1152805
AYRES S2	7630303	BEAGLE121	1120425	BEECH 18	1151023	BEECH 35	1151518	BEECH 65	1152803
AYRES S2	8380306	BEAGLE121	1120424	BEECH 1900	1154160	BEECH 35	1151544	BEECH 65	1152802
AYRES S2	8380302	BEECH 100	1152919	BEECH 1900	1154161	BEECH 35	1151520	BEECH 76	1153005
BAC 111	1480270	BEECH 100	1152915	BEECH 200	1152929	BEECH 35	1151538	BEECH 77	1153007
BAC 111	1480208	BEECH 100	1152916	BEECH 200	1152920	BEECH 35	1151510	BEECH 80	1152807
BAC 111	1480268	BEECH 1074	1151606	BEECH 200	1152928	BEECH 36	1151516	BEECH 80	1152806
BAC 146	1500266	BEECH 17	1150512	BEECH 200	1152922	BEECH 36	1151609	BEECH 80	1152812
BAG	1500217	BEECH 17	1150554	BEECH 200	1152924	BEECH 36	1151605	BEECH 80	1152808
BAG	1121224	BEECH 17	1150504	BEECH 23	1151250	BEECH 36	1151603	BEECH 90	1152907
BAG	1121223	BEECH 17	1150530	BEECH 23	1151204	BEECH 36	1151604	BEECH 90	1152912
BAG	4230170	BEECH 17	1150550	BEECH 23	1151214	BEECH 36	1151607	BEECH 90	1152914
BALWKSFIREFY	1050104	BEECH 17	1150556	BEECH 23	1151240	BEECH 45	1152006	BEECH 90	1152909

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SDR NAME	FAA CODE	SDR NAME	FAA CODE	SDR NAME	FAA CODE	SDR NAME	FAA CODE	SDR NAME	FAA CODE
BEECH 90	1152904	BELL 47	1181034	BLANCA7	2110112	BOARD XJL1	2320104	BOEING75	1380154
BEECH 90	1152923	BELL 47	1181202	BLANCA7	1220460	BOEING100	1381902	BOEING75	1380152
BEECH 90	1152908	BELL 47	1181024	BLANCA7	2110140	BOEING107	1385005	BOEING75	1380134
BEECH 95	1153402	BELL 47	1181014	BLANCA7	2110148	BOEING107	1385007	BOEING75	1380122
BEECH 95	1153410	BELL 47	1181026	BLANCA7	2110144	BOEING107	9420604	BOEING75	1380132
BEECH 95	1153408	BELL 47	1181025	BLANCA7	1220438	BOEING234	1385064	BOEING75	1380105
BEECH 95	1153404	BELL 47	1181003	BLANCA7	21101N7	BOEING234	1385049	BOEING75	1380102
BEECH 95	1153406	BELL 47	1181030	BLANCA7	2110164	BOEING247	1382402	BOEING75	1380116
BEECH 99	1154006	BELL 47	1181032	BLANCA7	2110160	BOEING707	138367D	BOEING75	1380106
BEECH 99	1154004	BELL 47	1181104	BLANCA7	21101MA	BOEING707	138366C	BOEING75	1380104
BEECH 99	1154002	BELL 47	1180204	BLANCA7	21101ML	BOEING707	138365B	BOEING75	1380131
BEECH 99	1154003	BELL P63	1180202	BLANCA7	1220701	BOEING707	138366F	BOEING75	1380120
BELL 204	1181404	BELL 204	1181402	BLANCA7	2110172	BOEING707	138367F	BOEING75	1380118
BELL 204	1181405	BIMONDCB1	2370152	BLANCA7	2110158	BOEING707	138367N	BOEING75	1380142
BELL 206	1182103	BLANCA11	0191110	BLANCA7	1220601	BOEING720	1383873	BOEING75	1380146
BELL 206	1182107	BLANCA1412	1200902	BLANCA7	2110154	BOEING720	1383822	BOEING757	1384956
BELL 206	1181508	BLANCA1413	1201006	BLANCA7	21101NM	BOEING720	1383861	BOEING757	1384969
BELL 206	1181522	BLANCA1413	1201002	BLANCA7	2110170	BOEING720	1383818	BOEING767	1385205
BELL 206	1182108	BLANCA1413	1201004	BLANCA7	2110150	BOEING727	1384036	BOEING817	1380204
BELL 206	1181506	BLANCA1419	3080108	BLANCA7	1220501	BOEING727	138408D	BOEING817	1380202
BELL 206	1181502	BLANCA1419	3080114	BLANCA7	2110104	BOEING727	1384010	BOEINGC97	1381611
BELL 206	1181511	BLANCA1419	3080118	BLANCA7	2110168	BOEING727	1384017	BOEINGC97	1381604
BELL 212	1181420	BLANCA1419	3080106	BLANCA7	2110114	BOEING727	1384077	BOEINGH21	1385006
BELL 214	1182106	BLANCA1419	1220408	BLANCA7	21101N2	BOEING727	1384074	BOEINGH21	9420106
BELL 214	1182105	BLANCA1419	4580808	BLANCA7	2110162	BOEING727	1384101	BOEINGH21	9420102
BELL 214	1182100	BLANCA1419	4580806	BLANCA7	2110110	BOEING727	1384078	BOEINGX115	1380810
BELL 222	1182124	BLANCA1419	1220402	BLANCA7	21101N2	BOEING727	138407E	BOEINGX47	4090202
BELL 222	1182148	BLANCA1419	3080104	BLANCA8	1220801	BOEING727	1384008	BOLKMS105	5626020
BELL 222	1182123	BLANCA1419	3080126	BLANCAPACMKR	1200702	BOEING727	1384009	BOLKMS105	5626005
BELL 222	1182140	BLANCA1419	1220402	BLANCAPACMKR	1200702	BOEING727	138400K	BOLKMS105	5626008
BELL 222	1182122	BLANCA1419	3080112	BLANCASKYRKT	1200402	BOEING727	138407G	BOLKMS105	5626006
BELL 301	1182109	BLANCA1419	3080116	BLANCASKYRKT	1200602	BOEING727	138400H	BOLKMS117	5626017
BELL 412	1182202	BLANCA1419	3080102	BNORM BN2	1520210	BOEING737	138448D	BOLKMS117	5626010
BELL 47	1180702	BLANCA1419	3080122	BNORM BN2	1520209	BOEING737	138446R	BOLKMS117	5626012
BELL 47	1181102	BLANCA1419	3080124	BNORM BN2	1520206	BOEING737	1384473	BOLKMS117	5626015
BELL 47	1181310	BLANCA1419	1220404	BNORM BN2	1520227	BOEING737	138448W	BOLKMS209	5626007
BELL 47	1180602	BLANCA1419	3080128	BNORM BN2	1520215	BOEING737	1384610	BOLKOWJR	1400202
BELL 47	1181031	BLANCA149	1200804	BNORM BN2	1520226	BOEING737	138448Y	BRAERODH125	1500285
BELL 47	1181008	BLANCA149	1200802	BNORM BN2	1520205	BOEING747	1384873	BRAERODH125	1500205
BELL 47	1180604	BLANCA17	1220436	BNORM BN2	1520302	BOEING747	1384830	BRASOVIS28	4490102
BELL 47	1181028	BLANCA17	1220432	BNORM BN2	1520207	BOEING75	1380138	BRASOVIS28	4490103
BELL 47	1181011	BLANCA17	1220433	BNORM BN2	7080227	BOEING75	1380112	BRASOVIS29	4490106
BELL 47	118084G	BLANCA17	1220434	BNORM BN2	1520204	BOEING75	1380148	BRWSTFLEET10	1462004
BELL 47	1180606	BLANCA17	1220435	BNORM BN2	1520202	BOEING75	1380108	BRWSTFLEET11	1461104
BELL 47	1181020	BLANCA17	1220437	BNORM BN2	1520350	BOEING75	1380136	BRWSTFLEET2	1461204
BELL 47	1181029	BLANCA51	1225051	BNORM BN2	1520220	BOEING75	1380144	BRWSTFLEET2	1461202
BELL 47	1181012	BLANCA7	2110136	BNORM BN2	7080221	BOEING75	1380140	BRWSTFLEET7	1461504
BELL 47	1181033	BLANCA7	21101PC	BNORM BN2	1520221	BOEING75	1380150	BRWSTFLEET7	1461512
BELL 47	1181106	BLANCA7	21101NB	BNORM BN2MK3	1520203	BOEING75	1380137	BRWSTFLEET7	1461502
BELL 47	1181023	BLANCA7	2110166	BNORM BN2MK3	1520208	BOEING75	1380124	BRWSTFLEET8	1461804



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SDR NAME	FAA CODE	SDR NAME	FAA CODE	SDR NAME	FAA CODE	SDR NAME	FAA CODE	SDR NAME	FAA CODE
BRWSTFLEET8	1461802	CESSNA150	2071828	CESSNA180	2072624	CESSNA206	2073356	CESSNA210	2073455
BRWSTFLEET9	1461902	CESSNA150	2071808	CESSNA182	2072716	CESSNA206	2073309	CESSNA210	2073404
BUHL CA3	1650302	CESSNA150	2071806	CESSNA182	2072710	CESSNA206	2073312	CESSNA210	2073416
BUHL IA1	1651002	CESSNA150	2071810	CESSNA182	2072731	CESSNA206	2073357	CESSNA210	2073414
BOKER 131	1590104	CESSNA150	2071818	CESSNA182	2072728	CESSNA206	2073333	CESSNA210	2073447
BOKER 131	1590114	CESSNA150	2071836	CESSNA182	2072736	CESSNA206	2073338	CESSNA210	2073448
BOKER 133	1590326	CESSNA150	2071835	CESSNA182	2075806	CESSNA206	2073313	CESSNA210	2073459
BURNS BA42	05601D3	CESSNA170	2072304	CESSNA182	2072724	CESSNA206	2073334	CESSNA210	2073453
BUSHMS2000	0350406	CESSNA170	2072306	CESSNA182	2072730	CESSNA206	2073344	CESSNA210	2073453
BUTLERBHWK	1720102	CESSNA170	2072302	CESSNA182	2072726	CESSNA206	2073311	CESSNA210	2073450
CAMARA480	1890102	CESSNA172	2072412	CESSNA182	2075802	CESSNA206	2073332	CESSNA303	2073820
CAMARA210	1880215	CESSNA172	2072429	CESSNA182	2072706	CESSNA206	2073302	CESSNA305	2074006
CAMARND50	1880114	CESSNA172	2072418	CESSNA182	2072722	CESSNA206	2073324	CESSNA305	2074005
CAMARONMODELO	1880260	CESSNA172	2072424	CESSNA182	2072735	CESSNA206	2073304	CESSNA305	2074012
CAMARONMODELN	1880245	CESSNA172	2072414	CESSNA182	2072734	CESSNA206	2073310	CESSNA305	2074001
CAMARONMODELO	1880106	CESSNA172	2072434	CESSNA182	2072702	CESSNA206	2073346	CESSNA305	2074028
CAMARONMODELO	1880110	CESSNA172	2072420	CESSNA182	2075814	CESSNA206	2073340	CESSNA305	2074004
CAMARONMODELO	1880202	CESSNA172	2072420	CESSNA182	2072712	CESSNA206	2073316	CESSNA305	2074018
CAMARONMODELO	1880203	CESSNA172	2072426	CESSNA182	2072714	CESSNA206	2073350	CESSNA305	2074016
CAMARONMODELO	1880112	CESSNA172	2072404	CESSNA182	2075816	CESSNA206	2073318	CESSNA305	2074003
CAMARONMODELO	1880204	CESSNA172	2072202	CESSNA182	2072704	CESSNA206	2073353	CESSNA305	2074002
CAMARONMODELO	1880205	CESSNA172	2072410	CESSNA182	2072732	CESSNA206	2073308	CESSNA305	2074014
CAMARONMODELO	1880113	CESSNA172	2072413	CESSNA182	2072718	CESSNA206	2073348	CESSNA305	2074030
CAMARONMODELO	1880104	CESSNA172	2072436	CESSNA182	2072708	CESSNA206	2073342	CESSNA305	2073902
CAMARONMODELO	1880201	CESSNA172	2072430	CESSNA185	2072812	CESSNA206	2073352	CESSNA305	2074008
CAMARONMODELO	1880225	CESSNA172	2072431	CESSNA185	2072802	CESSNA206	2073306	CESSNA310	2074206
CAMARONMODELO	1880120	CESSNA172	2072432	CESSNA185	2072818	CESSNA207	2073604	CESSNA310	2074208
CAMARONMODELO	1880108	CESSNA172	2072437	CESSNA185	2072806	CESSNA207	2073614	CESSNA310	2074246
CAMARONMODELO	1880122	CESSNA172	2072421	CESSNA185	2072820	CESSNA207	2073612	CESSNA310	2074228
CARMAM200	1981008	CESSNA172	2072406	CESSNA185	2072821	CESSNA207	2073602	CESSNA310	2074238
CASA C212	2410204	CESSNA172	2072438	CESSNA185	2072801	CESSNA208	2073703	CESSNA310	2074214
CASA C212	2410302	CESSNA172	2072408	CESSNA185	2072816	CESSNA208	2073701	CESSNA310	2074218
CASA C212	2410200	CESSNA175	2072502	CESSNA185	2072804	CESSNA208	2073702	CESSNA310	2074242
CASA C212	2410304	CESSNA175	2072508	CESSNA188	2073007	CESSNA210	2073402	CESSNA310	2074216
CASA C212	2410202	CESSNA175	2072506	CESSNA188	2073002	CESSNA210	2073430	CESSNA310	2074240
CENTRL26	0180604	CESSNA175	2072504	CESSNA188	2073012	CESSNA210	2073454	CESSNA310	2074202
CESSNA120	2071402	CESSNA177	2073704	CESSNA188	2073006	CESSNA210	2073439	CESSNA310	2074244
CESSNA140	2071602	CESSNA177	2073708	CESSNA188	2073005	CESSNA210	2073446	CESSNA310	2074220
CESSNA140	2071604	CESSNA177	2073706	CESSNA188	2073010	CESSNA210	2073456	CESSNA310	2074222
CESSNA150	2071812	CESSNA177	2073709	CESSNA188	2073008	CESSNA210	2073418	CESSNA310	2074224
CESSNA150	2071822	CESSNA180	2072610	CESSNA188	2073004	CESSNA210	2073412	CESSNA310	2074230
CESSNA150	2071804	CESSNA180	2072612	CESSNA190	2072902	CESSNA210	2073406	CESSNA310	2074210
CESSNA150	2071831	CESSNA180	2072602	CESSNA195	2073108	CESSNA210	2073408	CESSNA310	2074212
CESSNA150	2071820	CESSNA180	2072622	CESSNA195	2073112	CESSNA210	2073436	CESSNA310	2074234
CESSNA150	2071802	CESSNA180	2072618	CESSNA195	2073110	CESSNA210	2073422	CESSNA310	2074204
CESSNA150	2071830	CESSNA180	2072616	CESSNA195	2073106	CESSNA210	2073432	CESSNA310	2074245
CESSNA150	2071826	CESSNA180	2072606	CESSNA195	2073102	CESSNA210	2073451	CESSNA310	2074226
CESSNA150	2071816	CESSNA180	2072608	CESSNA205	2073204	CESSNA210	2073438	CESSNA320	2074506
CESSNA150	2071814	CESSNA180	2072614	CESSNA205	2073202	CESSNA210	2073410	CESSNA320	2074516
CESSNA150	2071824	CESSNA180	2072604	CESSNA206	2073322	CESSNA210	2073440	CESSNA320	2074514

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CESSNA320	2074512	CESSNA500	2076606	CONAERLA4	5110302	CURTISTRVAIR	2621804	CVAC	LB30	2420804			
CESSNA320	2074510	CESSNA500	2076604	CONAERLA4	5110320	CURTISTRVAIR	2621830	CVAC	P4Y	2421102			
CESSNA320	2074502	CESSNA501	2076605	CONAERLA4	5110310	CURTISTRVAIR	2621508	CVAC	PBY5	2421208			
CESSNA320	2074508	CESSNA501	2076603	CONAERLA4	2400108	CURTISTRVAIR	2621012	CVAC	PBY5	2421230			
CESSNA320	2074504	CESSNA650	2076802	CONAERLA4	5110306	CURTISTRVAIR	2621402	CVAC	PBY5	2421218			
CESSNA325	2074802	CESSNA650	2076802	CONAERLA4	2400102	CURTISTRVAIR	2621822	CVAC	PBY6	2421302			
CESSNA335	2075601	CESSNAT303	2073803	CONAERLA4	5110312	CURTISTRVAIR	2621802	CVAC	STC580	2423001			
CESSNA336	2075602	CESSNAT37	2074321	CONAERLA4	5110304	CURTISTRVAIR	2621006	CVAC	STC580	2422806			
CESSNA337	2075707	CESSNAT50	2071302	CORCRNGLIDER	2480124	CURTISTRVAIR	2621904	CVAC	STC580	2422801			
CESSNA337	2075730	CESSNAT50	2071306	CORCRNGLIDER	2480126	CURTISTRVAIR	2621308	CVAC	STC580	2422804			
CESSNA337	2075706	CESSNAT50	2071308	CORCRNGLIDER	2480122	CURTISTRVAIR	2621818	CVAC	STC600	2422660			
CESSNA337	2075702	CESSNAUC77	2070702	CUNHAMPT6	2580104	CURTISTRVAIR	2621702	CVAC	STC640	2422814			
CESSNA337	2075731	CESSNAUC77	2070802	CURTIS22	2620202	CURTISTRVAIR	2621204	DART	G	2700108			
CESSNA337	2075723	CESSNAUC94	2070902	CURTISC46	2622602	CURTISTRVAIR	2621902	DART	G	2700106			
CESSNA337	2075725	CESSNAUC94	2071102	CURTISC46	2622708	CURTISTRVAIR	2423302	DART	G	2700102			
CESSNA337	2075726	CESSNAUC94	2071002	CURTISC46	2622608	CURTISTRVAIR	2422602	DART	G	2700104			
CESSNA337	2075724	CHILD S1	0110100	CURTISC46	2622601	CVAC	240	DAVIS	D1	2740504			
CESSNA337	2075727	CHILD S1	0110303	CURTISC46	2622604	CVAC	240	DAVIS	D1	2740508			
CESSNA337	2075704	CHILD S1	0110301	CURTISFLGLNG	2620302	CVAC	240	DAVIS	D1	2740506			
CESSNA337	2075732	CHILD S2	0110304	CURTISJUN4D	2620604	CVAC	240	DAVIS	V3	2743002			
CESSNA337	2075712	CHILD S2	0110201	CURTISJR	2620502	CVAC	240	DHAY	DH112	2800421			
CESSNA337	2075717	CHILD S2	0110202	CURTISO52	2622002	CVAC	240	DHAY	DH82	2801000			
CESSNA337	2075721	CHRIS HUSKY	221020X	CURTISP40	2622203	CVAC	240	DHAY	DH87	2801013			
CESSNA337	2075719	CLARK 1000	2230102	CURTISP40	2622206	CVAC	240	DHAY	DH81	2801739			
CESSNA337	2075714	CLARK 12	2230302	CURTISP40	2622202	CVAC	240	DHAY	DH81	2801716			
CESSNA337	2075733	CNDARCL44	1900102	CURTISROBIN	2620802	CVAC	240	DHAY	DH81	2801736			
CESSNA340	2076405	CNDARCL600	1900305	CURTISROBIN	2620808	CVAC	30	DHAY	DH81	2801702			
CESSNA340	2076404	CNDARCL600	1900302	CURTISROBIN	2620806	CVAC	30	DHAY	DH81	2801738			
CESSNA401	207590D	CNDARCL600	1900304	CURTISROBIN	2620812	CVAC	340	DHAY	DH81	2801712			
CESSNA401	207590C	CNDARF86E	1900812	CURTISSEDAN	2620904	CVAC	340	DHAY	DH81	2801714			
CESSNA401	207590C	CNTRAR101	1990104	CURTISTRVAIR	2621814	CVAC	340	DHAY	DH81	2801704			
CESSNA402	207590M	CNTRAR101	1990102	CURTISTRVAIR	2621606	CVAC	340	DHAY	DH81	2800108			
CESSNA402	207590P	COAIRE3C	2350106	CURTISTRVAIR	2621304	CVAC	340	DHAY	DH82	2800107			
CESSNA402	207590K	COAIRE3C	2350102	CURTISTRVAIR	2621506	CVAC	440	DHAY	DH82	2800102			
CESSNA402	207590L	COAIRE3C	2350104	CURTISTRVAIR	2621108	CVAC	440	DHAY	DH82	2800105			
CESSNA402	207590L	COAIRE5C	2350202	CURTISTRVAIR	2621824	CVAC	B24	DHAY	DH82	2800103			
CESSNA404	2075901	COLT 160	8970104	CURTISTRVAIR	2621810	CVAC	BT13	DHAY	DH82	2801830			
CESSNA411	2075904	COLT 240A	2300180	CURTISTRVAIR	2621604	CVAC	BT13	DHAY	DH82	2800106			
CESSNA411	2075902	COLT 77A	2300102	CURTISTRVAIR	2621302	CVAC	BT13	DHAY	DH82	2800104			
CESSNA414	2075907	COMWTH175	2370402	CURTISTRVAIR	2621908	CVAC	BT13	DHAY	DH82	2800109			
CESSNA414	2075908	COMWTH180	2370504	CURTISTRVAIR	2621820	CVAC	BT13	DHAY	DH82	2800202			
CESSNA421	2076010	COMWTH180	2370502	CURTISTRVAIR	2621704	CVAC	BT13	DHAY	DH82	2800304			
CESSNA421	2076012	COMWTH185	2370602	CURTISTRVAIR	2621010	CVAC	BT13	DHAY	DH82	2800302			
CESSNA421	2076014	COMWTH185	2370604	CURTISTRVAIR	2621004	CVAC	BT13	DHAY	DH82	2800306			
CESSNA421	2076016	COMWTH185	2370608	CURTISTRVAIR	2621826	CVAC	BT13	DHAY	DH82	2800816			
CESSNA425	2076018	COMWTH190	2370704	CURTISTRVAIR	2621806	CVAC	BT15	DHAY	DH82	2802710			
CESSNA441	2076020	COMWTH7000	2371206	CURTISTRVAIR	2621808	CVAC	BT15	DHAY	DH82	2802708			
CESSNA500	2076750	COMWTH9000	2371422	CURTISTRVAIR	2621602	CVAC	L13	DHAY	DH82	2809003			
CESSNA500	2076607	CONAERC1	5110102	CURTISTRVAIR	2621104	CVAC	L13	DHAY	DH82	2809002			
CESSNA500	2076602	CONAERC2	5110202	CURTISTRVAIR	2621404	CVAC	L13	DHAY	DH82	2801002			

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DHAVXXDH89	2801015	DUG DC6	3021706	FLTCHRF25	3530102	FRCHLDF27	3373004	GOODYRTZ	3870218
DOMION800	2970102	DUG DC7	3021806	FLYGSTWELHE	3802219	FRCHLDF27	3373006	GOVT N22	3880102
DORNER133	2999006	DUG DC7	3021804	FOKKERF27	4990617	FRCHLDF27	3373046	GROB 103CAT	1660202
DORNERDO228	2995000	DUG DC8	3021908	FOKKERF27	4990629	FRCHLDF27	3373002	GROB 109	1660205
ICORNERDO228	2992030	DUG DC8	3021998	FOKKERF27	4990614	FRCHLDF45	3371202	GROB 109	1660205
DORNERDO228	2992020	DUG DC8	3021928	FOKKERF27	4990620	FRCHLDFC2	3371102	GROB ASTIR	1660204
DORNERDO27	2990704	DUG DC8	3021906	FOKKERF28	4990808	FRCHLDFH100	4361415	GRTLSK2T1	3910104
DORNERDO27	2990721	DUG DC8	3022036	FOMOCO4AT	3590104	FRCHLDFH227	3373050	GRTLSK2T1	3910102
DORNERDO28	2990102	DUG DC9	3022066	FOMOCO4AT	3590102	FRCHLDFH227	3373050	GRTLSK2T1	3910107
DORNERDO28	2991404	DUG DC9	3022034	FOMOCO5AT	3590204	FRCHLDR31	3371402	GRTLSK2T1	3910108
DUG A20	3020306	DUG DC9	302206C	FOMOCO5AT	3590202	FRCHLDR34	3371504	GRTLSK2T1	3910101
DUG A20	3020302	DUG DC9	302203K	FRANK 90	3680102	FRCHLDR34	3371506	GRTLSK2T1	3910106
DUG A24	3020406	DUG DC9	3022065	FRCHLD21	3371302	FRCHLDM62	3371626	GRUMANAF2S	3950104
DUG A26	3020504	DUG DOLPHN	3020104	FRCHLD22	3370108	FRCHLDM62	3374006	GRUMANF6F	3950602
DUG A26	3020506	DRIGSSSKYLK3	3160502	FRCHLD22	3370116	FRCHLDM62	3371618	GRUMANF6F	395069G
DUG B23	3020702	DURMOLF46	3200502	FRCHLD22	3370104	FRCHLDM62	3371624	GRUMANF6F	3950614
DUG B26	3020514	EAGLE DW	3230203	FRCHLD22	3370112	FRCHLDM62	3371630	GRUMANF7F	3950704
DUG DC2	3021302	EAGLEBAX7	3240107	FRCHLD22	3370114	FRCHLDM62	3371620	GRUMANF8F	3950802
DUG DC3	3021457	EAGLEBEC7	3240207	FRCHLD22	3370110	FRCHLDM62	3371604	GRUMANF8F	3950801
DUG DC3	3021401	EIRVON20	5760102	FRCHLD24	3370608	FRCHLDM62	3374004	GRUMANF9	3950905
DUG DC3	3021458	EIRVON20	5760104	FRCHLD24	3370408	FRCHLDM62	3371622	GRUMANFM	3950102
DUG DC3	3021454	EIRVON20	5760202	FRCHLD24	3370202	FRCHLDM62	3371608	GRUMANG134	3951000
DUG DC3	3021436	EIRVON20	5760204	FRCHLD24	3370628	FRCHLDM62	3371632	GRUMANG21	3951205
DUG DC3	3021466	EIRVON20	5760207	FRCHLD24	3370206	FRCHLDM62	3371606	GRUMANG32	3951304
DUG DC3	3021474	EIRVON20	5760206	FRCHLD24	3370302	FRCHLDM62	3371628	GRUMANG44	3951602
DUG DC3	3021472	EMAIR MA1	6070102	FRCHLD24	3370418	FUJI LMI	3730110	GRUMANG73	3951902
DUG DC3	3021440	EMAIR MA1	3280103	FRCHLD24	3370514	FUNK FUNKC	3720202	GRUMANS16	3950412
DUG DC3	3021467	EMB 110	3260124	FRCHLD24	3370216	GALAXYGX7	3760520	GRUMANS16	3950405
DUG DC3	3021478	EMB 110	3260122	FRCHLD24	3370414	GALAXYGX9	3760530	GRUMANS16	3950404
DUG DC3	3021404	EMB 120	3260201	FRCHLD24	3370204	GARCIATROJAN	3270102	GRUMANS16	3950413
DUG DC3	3021471	ENSTRMF28	3300430	FRCHLD24	3370520	GEM 205	0380102	GRUMANS16	3950410
DUG DC3	3021462	ENSTRMF28	3300550	FRCHLD24	3370508	GENBALAX6	3760202	GRUMANS16	3950409
DUG DC3	3021433	ENSTRMF28	3300510	FRCHLD24	3370212	GENBALAX6	3760102	GRUMANS16	3950406
DUG DC3	3021424	ENSTRMF28	3300502	FRCHLD24	3370516	GENBALSPRINT	3760402	GRUMANS16	3950414
DUG DC3	3021461	ENSTRMF28	3300406	FRCHLD24	3370220	GLASER300	3802509	GRUMANS16T	3950407
DUG DC3	3021481	ENSTRMF28	3300407	FRCHLD24	3370626	GLASER400	3802510	GRUMANS16T	3950408
DUG DC3	3021460	ENSTRMF28	3300412	FRCHLD24	3370602	GLASFL1201	3800344	GRUMANTS2	3951102
DUG DC4	3021518	ENSTRMF28	3300505	FRCHLD24	3370208	GLASFL1304	3800347	GRUMAVAA1	0630820
DUG DC4	3021516	ENSTRMF28	3300506	FRCHLD24	3370502	GLASFLBS1	3800337	GRUMAVAA1	3960100
DUG DC4	3021530	ENSTRMF28	3300404	FRCHLD24	3370402	GLASFLH301	3800335	GRUMAVAA1	3960103
DUG DC4	3021506	ENTWICPHEBUS	3321210	FRCHLD24	3370620	GLASFLH301	3800335	GRUMAVAA5	3960105
DUG DC4	3021524	ENTWICPHEBUS	1403014	FRCHLD24	3370614	GLASFLH301	3800337	GRUMAVAA5	3960104
DUG DC4	3021534	ENTWICPHEBUS	3321206	FRCHLD71	3370802	GLASFLH301	3800337	GRUMAVG1159	3960302
DUG DC4	3021510	EVNAIR4500	3340106	FRCHLDC119	3372106	GLASFLKSTRLL	3800343	GRUMAVG164	3960204
DUG DC4	3021512	EXPER P2	056361T	FRCHLDC119	3372108	GLASFLITBELL	3800346	GRUMAVG164	3952802
DUG DC4	3021536	FARZWEDIAMAT	3550806	FRCHLDC119	3372102	GOLDENCHIEF	3840102	GRUMAVG164	3960202
DUG DC4	3021502	FARZWEDIAMAT	3550802	FRCHLDC123	3372202	GOODYR813	3870148	GRUMAVG164	3979904
DUG DC4	3021528	FCKWLF44J	3540102	FRCHLDC82	3372002	GOODYRFG1D	3870512	GRUMAVG164	3952803
DUG DC4	3021522	FLEET 16B	3480502	FRCHLDF27	3373016	GOODYRFG20	3870220	GRUMAVG164	3960201
DUG DC6	3021712	FLTCHR24	3530204	FRCHLDF27	3373008	GOODYRS30	3870139	GRUMAVG164	3952804

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GRUMAVG164	3952702	GULSTM690TP	7630519	HILLERUH12	4360122	HWKSLY80A	2800902	KAMAN K600	4800704
GRUMAVG164	3952801	GULSTM690TP	7630517	HILLERUH12	4360132	HWKSLYDH104	2800417	KAMAN K600	4800702
GRUMAVG164	3960203	GULSTM690TP	0141720	HILLERUH12	4360126	HWKSLYDH104	2800414	KAMANK600	8940101
GRUMAVG21	3951204	GULSTMAA1	0630710	HILLERUH12	4360102	HWKSLYDH104	2800402	KAWSKXV107	4820101
GRUMAVG21	3951214	GULSTMAA1	0630610	HILLERUH12	4360115	HWKSLYDH104	2800404	KELLETKO1	4850106
GRUMAVG21	3951202	GULSTMAA5	0631410	HILLERUH12	4360118	HWKSLYDH104	2800406	KINNERB	4940202
GRUMAVG21	3951216	GULSTMAA5	3960106	HILLERUH12	4360124	HWKSLYDH104	2800410	KINNERB	4940204
GRUMAVG89	3951006	GULSTMG1159	3970109	HILLERUH12	4360117	HWKSLYDH104	2800412	KINNERB	4940102
GRUMAVJ2F	3950208	GULSTMG1159	3953535	HILLERUH12	4360104	HWKSLYDH104	2800418	LAIFN10	5090204
GRUMAVTBM	3950306	GULSTMG1159	3980115	HILLERUH12	4360125	HWKSLYDH106	2800308	LAIFNBA100	50901PB
GRUMAVTBM	3950308	GULSTMG1159	3953505	HILLERUH12	4360131	HWKSLYDH114	2800506	LAIRD LC	5070102
GRUMAVTBM	3950310	GULSTMG159	3952202	HILLERUH12	4360809	HWKSLYDH125	4230106	LAIRD LC	5070104
GRUMAVTBM	7630302	GULSTMG159	3980250	HILLERUH12	4360116	HWKSLYDH125	4230138	LAIRD LCB	5070110
GULSTM112	7630314	GULSTMG44	3951502	HILLERUH12	4360103	HWKSLYDH125	423013P	LAISTRIP15	5100203
GULSTM112	7630315	GULSTMG44	3951508	HILLERUH12	4360113	HWKSLYDH125	4230126	LAISTRIP15	5100202
GULSTM112	0144701	GULSTMG73	3951802	HILLERUH12	4360130	HWKSLYDH125	4230158	LAISTRIP15	5100108
GULSTM112	7630307	GULSTMGA7	3960401	HILLERUH12	4360119	HWKSLYDH125	423013M	LAISTRIP46	5100101
GULSTM112	7630306	H19/45	8141615	HILLERUH12	4360127	HWKSLYDH125	4230140	LAISTRIP49	5100102
GULSTM500	0141108	H23/HTE	8141616	HILLERUH12	4360135	HWKSLYDH125	4210101	LEAR 23	5170102
GULSTM500	0141102	H23/HTE	4362305	HILLERUH12	4360120	HWKSLYDH125	4230160	LEAR 24	5170316
GULSTM500	0141106	H23/HTE	4360109	HILLERUH12	4360110	HWKSLYDH125	4230110	LEAR 24	5170310
GULSTM500	0141104	H23/HTE	4360111	HILLERUH12	4360105	HWKSLYDH125	1500204	LEAR 24	5170317
GULSTM500	0141107	H23/HTE	4362303	HILLERUH12	4360128	HWKSLYDH125	1440602	LEAR 24	5170302
GULSTM520	0141202	H34/55	4360123	HILLERUH12	4360121	HWKSLYDH125	1440504	LEAR 24	5170311
GULSTM560	0141402	H34/55	8141810	HILLERYOE1	4362402	HWKSLYDH125	1440506	LEAR 24	5170306
GULSTM560	0141404	H34/55	8141813	HWKSLYDH125	4360121	HWKSLYDH125	1440502	LEAR 24	5170304
GULSTM560	0141406	H34/55	8141823	HWKSLYDH125	4360128	HWKSLYDH125	1440502	LEAR 24	5170307
GULSTM680	0141611	H34/55	8141819	HOWARD500	4390102	HWKSLYDH125	4550502	LEAR 25	5170511
GULSTM680	0141408	H37	8142302	HSPAVNHA1112	4380102	HWKSLYDH125	4551002	LEAR 25	5170506
GULSTM680	0141602	HAMFLUHF320	4071204	HSPAVNHA200	4380115	HWKSLYDH125	4552002	LEAR 25	5170514
GULSTM680	7630513	HARTMOWSM	4200102	HUGHES269	4470403	HWKSLYDH125	5650306	LEAR 25	5170509
GULSTM680	0141612	HAWKINC97	1381603	HUGHES269	4470402	HWKSLYDH125	5650308	LEAR 25	5170513
GULSTM680	0141606	HEAD AX888	0563777	HUGHES269	4470502	HWKSLYDH125	5650304	LEAR 28	5170528
GULSTM680	0141802	HEATH CNA40	4250102	HUGHES269	4470504	HWKSLYDH125	5650310	LEAR 35	5170603
GULSTM680	0141604	HEATH LNB4	4250202	HUGHES269	4470404	HWKSLYDH125	0142002	LEAR 35	5170601
GULSTM680	0141610	HELIO H250	4300302	HUGHES269	4470704	HWKSLYDH125	0142006	LEAR 35	5170600
GULSTM680	0141608	HELIO H295	4301104	HUGHES369	4470704	HWKSLYDH125	0142010	LEAR 35	5170600
GULSTM680TP	0141714	HELIO H295	4300803	HUGHES369	4470728	HWKSLYDH125	4500101	LEAR 35	5170602
GULSTM680TP	0141712	HELIO H295	4301102	HUGHES369	4470802	HWKSLYDH125	4500102	LEAR 55	5170706
GULSTM680TP	0141718	HELIO H295	4301101	HUGHES369	4470720	HWKSLYDH125	4500103	LEAR 55	5170702
GULSTM680TP	0141716	HELIO H295	4300802	HUGHES369	4470718	JAMISN31	4650502	LET 113	1360306
GULSTM690TC	3970404	HELIO H391	4300105	HUGHES369	4470706	JAMISN32	4651004	LRHEED10	5261302
GULSTM690TP	3970411	HELIO H391	4300102	HUGHES369	4470730	JBMSTRDGA11	4690302	LRHEED10	5261314
GULSTM690TP	3970410	HELIO H395	4300206	HUGHES369	4470708	JBMSTRDGA15	4690502	LRHEED1011	5265010
GULSTM690TP	0141722	HELIO H395	4300202	HUGHES369	4470731	JBMSTRDGA15	4690506	LRHEED1049	5262118
GULSTM690TP	7630515	HELIO H700	4300400	HUGHES369	4470707	JBMSTRDGA15	4690516	LRHEED1049	5262121
GULSTM690TP	3970610	HELIO H800	4300500	HUGHES369	4470806	JBMSTRDGA18	4690604	LRHEED1049	5262131
GULSTM690TP	7630516	HELIO HST550	4301002	HUGHES369	4470702	KAISERF5	4762002	LRHEED12A	5261402
GULSTM690TP	3970405	HILLERFH1100	3376502	HUGHES369	4470722	KAMAN K600	4800802	LRHEED1329	5263108
GULSTM690TP	7630518	HILLERUH12	4360114	HUGHES369	4470805	KAMAN K600	4800805	LRHEED1329	5263106

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SDR NAME	FAA CODE	SDR NAME	FAA CODE	SDR NAME	FAA CODE	SDR NAME	FAA CODE	SDR NAME	FAA CODE	SDR NAME	FAA CODE
LKHEED1329	5263125	LUSCOM8	8190132	MILITARY47	1181007	MODFD47	118084V	MTSBSIMU2	5780408		
LKHEED1329	5263102	LUSCOM8	8190120	MILITARY47	1180809	MODFD47	1180843	MTSBSIMU2	5780413		
LKHEED18	5261642	MACCHIAL60	5400106	MILITARY47	1180813	MODFD47	1181019	MTSBSIMU2	5780406		
LKHEED18	5261640	MACCHIAL60	5400108	MILITARY47	1181006	MODFD47	1181074	MTSBSIMU2	5780409		
LKHEED18	5261634	MACDOUG369	3027369	MILITARY47	1180808	MODFD47	1181032	MTSBSIMU300	5780602		
LKHEED18	5261602	MAEL BA42	5430102	MILITARY47	1181002	MODFD47	1181027	MTSBSIMU300	5781300		
LKHEED18	5261624	MARTIN202	5450602	MILITARY47	1180810	MODFD47	118103H	MULTTECD16	9230606		
LKHEED188	5262604	MARTIN404	5450702	MILITARY47	8930105	MODFD47	1181068	MULTTECD16	9230602		
LKHEED300	5264504	MARTINE26	5450106	MILITARY47	1181010	MODFD47	1181068	MULTTECD16	9230604		
LKHEED382	5264130	MAULE M4	5460108	MILITARY47	1181585	MODFD47	1181071	MULTTECD16	9230604		
LKHEED382	5264140	MAULE M4	5460132	MILITARY47	1180904	MODFD47	1180845	MULTTECD16	9230612		
LKHEED49	5262002	MAULE M4	5460102	MILITARY47	1180817	MODFD47	4360701	MULTTECD16	9230608		
LKHEED2V	5260112	MAULE M4	5460106	MILITARY47	1181005	MODFD47	4361301	NAMER A36	6400102		
LKHEED2V	5260110	MAULE M4	5460104	MILITARY47	1180804	MODFD47	4361501	NAMER B25	6400710		
LKHEED2V	5269601	MAULE M4	5460112	MILITARY47	8930110	MODFD47	4361101	NAMER B25	6400714		
LKHEED38	5260204	MAULE M4	5460114	MILITARY47	1180802	MODFD47	4360601	NAMER B25	6400708		
LKHEED38	5260207	MAULE M4	5460105	MILITARY47	8930107	MODFD47	4360810	NAMER B25	6400712		
LKHEED38	5260205	MAULE M4	5460128	MILITARY47	8930103	MODFD47	4360801	NAMER B25	6400704		
LKHEED38	5260206	MAULE M5	5460135	MILITARY204	118141G	MODFD47	4360704	NAMER B25	6400702		
LKHEED38	5260214	MAULE M5	5460133	MITCH101	2000102	MODFD47	4360702	NAMER B25	6400718		
LKHEED38	5260201	MAULE M5	5460134	MNC0UP110	5810202	MOONEYM20	5870222	NAMER B25	6400705		
LKHEED38	5260203	MAULE M5	5460204	MNC0UP110	5810204	MOONEYM20	5870601	NAMER F51	6402302		
LKHEED3P	5260211	MAULE M6	5460160	MNC0UP90	5810102	MOONEYM20	5870219	NAMER F51	6402309		
LKHEEDPV1	5260102	MAULE M6	5460139	MNC0UP90	5810104	MOONEYM20	5870605	NAMER F51	6402307		
LKHEEDPV1	5260106	MAULE M7	5460170	MNC0UP90	5810107	MOONEYM20	5870220	NAMER F51	6402301		
LKHEEDT33	5260402	MAULE MX7	5460185	MNC0UP90	5810110	MOONEYM20	5870204	NAMER F51	6402306		
LKHEEDT33	5260406	MAULE MX7	5460180	MNC0UP90	5810108	MOONEYM20	5870308	NAMER F51	6402303		
LKHEEDT33	5260401	MCBEMSLARK95	4331020	MNC0UP90	5870106	MOONEYM20	5870212	NAMER F51	6402304		
LKHEEDVEGA1	5261002	MCBEMSLARK95	5550202	MNC0UP90	5870102	MOONEYM20	5870208	NAMER F82	6401522		
LKHEEDVEGA5	5261202	MCKINNG21T	5550120	MNC0UP90	5870104	MOONEYM20	5870314	NAMER F86	6401714		
LKHEEDY03A	5269501	MCKINNG21T	5550202	MNC0UP90	5870106	MOONEYM20	5870221	NAMER NA260	6402504		
LKINTL402	5263406	MCKINNG21T	5550105	MNC0UP90	5910108	MOONEYM20	5870312	NAMER NA260	6402502		
LORAL GZ22	3870221	MCLISHFUNKB	5480108	MNC0UP90	5910102	MOONEYM20	5870206	NA ER NA260	6402506		
LUSCMB1	5350102	MCLISHFUNKB	5480208	MNC0UP90	5870106	MOONEYM20	5870214	NA ER NA260	6402505		
LUSCMB4	5350202	MCLISHFUNKB	5480202	MNC0UP90	5870106	MOONEYM20	5870210	NAMER NA260	6400452		
LUSCMB8	8190122	MCLISHFUNKB	5480102	MNC0UP90	5870106	MOONEYM20	5870202	NAMER NA260	6402202		
LUSCMB8	8190112	MCLISHFUNKB	5480204	MNC0UP90	5870106	MOONEYM20	5870202	NAMER NA260	6402408		
LUSCMB8	8190110	MCLISHFUNKB	5480104	MNC0UP90	5870106	MOONEYM20	5870202	NAMER NA260	6400417		
LUSCMB8	8190114	MCLISHFUNKB	5480104	MNC0UP90	5870106	MOONEYM20	5870202	NAMER NA260	6400417		
LUSCMB8	8190104	MEYERSOTW	5650208	MNC0UP90	5870106	MOONEYM20	5870202	NAMER NA260	6400417		
LUSCMB8	8190128	MEYERSOTW	5650202	MNC0UP90	5870106	MOONEYM20	5870202	NAMER NA260	6400417		
LUSCMB8	8190130	MEYERSOTW	5650206	MNC0UP90	5870106	MOONEYM20	5870202	NAMER NA260	6400417		
LUSCMB8	8190116	MILITARY204	1181407	MNC0UP90	5870106	MOONEYM20	5870202	NAMER NA260	6400417		
LUSCMB8	8190154	MILITARY204	118141M	MNC0UP90	5870106	MOONEYM20	5870202	NAMER NA260	6400417		
LUSCMB8	8190124	MILITARY204	1181401	MNC0UP90	5870106	MOONEYM20	5870202	NAMER NA260	6400417		
LUSCMB8	8190106	MILITARY204	1181411	MNC0UP90	5870106	MOONEYM20	5870202	NAMER NA260	6400417		
LUSCMB8	8190126	MILITARY204	118141B	MNC0UP90	5870106	MOONEYM20	5870202	NAMER NA260	6400417		
LUSCMB8	8190118	MILITARY204	1181410	MNC0UP90	5870106	MOONEYM20	5870202	NAMER NA260	6400417		
LUSCMB8	8190102	MILITARY204	1181409	MNC0UP90	5870106	MOONEYM20	5870202	NAMER NA260	6400417		
LUSCMB8	8190108	MILITARY204	1180806	MNC0UP90	5870106	MOONEYM20	5870202	NAMER NA260	6400417		

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CDL NAME	FAA CODE	SDR NAME	FAA CODE	SDR NAME	FAA CODE	SDR NAME	FAA CODE	SDR NAME	FAA CODE
NNAMER T6	6400415	NORMST50	6480114	PILATSPC6	3375014	PIPER J5	7100712	PIPER PA23	7102305
NNAMER T6	6400422	NORMST65	6480122	PILATSPC6	7090122	PIPER J5	7100706	PIPER PA23	7102302
NNAMER T6	6400406	NORMST65	6480118	PILATSPC6	7090102	PIPER J5	7100202	PIPER PA23	7102309
NNAMER T6	6400430	NORMST65	6480116	PILATSPC6T	7090214	PIPER L14	7100902	PIPER PA23	7102308
NNAMER T6	6400441	NORMST65	6480124	PILATSPC6T	3375011	PIPER PA12	7101204	PIPER PA23	7102304
NNAMER T6	6400405	NORMSTEAGLE	7680120	PILATSPC6T	7090202	PIPER PA12	7101202	PIPER PA24	7102409
NNAMER T6	6400412	OBERNMG23SL	3801049	PILATSPC7	7090401	PIPER PA14	7101402	PIPER PA24	7102403
NNAMER T6	6400402	ORLHELH19	8141618	PINAIRSUPERV	7100102	PIPER PA15	7101502	PIPER PA24	7102402
NNAMER T6	6400416	ORLHELH19	8141610	PIPER 600	7106023	PIPER PA16	7101602	PIPER PA24	7102408
NNAMER T6	6400423	ORLHELH19	8141619	PIPER 600	7106001	PIPER PA17	7101702	PIPER PA24	7102404
NNAMER T6	6400420	ORLHELH19	8141609	PIPER 600	7106012	PIPER PA18	7101813	PIPER PA24	7102406
NNAMER T6	6400431	ORLHELH19	8141612	PIPER 600	7106015	PIPER PA18	7101832	PIPER PA25	7102508
NNAMER T6	6400407	ORLHELH19	814161J	PIPER 600	7106010	PIPER PA18	7101822	PIPER PA25	7102504
NNARDI FN333	6080102	ORLHELH19	8141608	PIPER 600	7106014	PIPER PA18	7101837	PIPER PA25	7102502
NNATBAL752	6113312	ORLHELH19	8141614	PIPER E2	7100302	PIPER PA18	7101824	PIPER PA28	7102805
NNATBAL752	6113320	ORLHELH19	8141616	PIPER F2	7100304	PIPER PA18	7101834	PIPER PA28	7102810
NNATBAL752	6113317	ORLHELH58	8141818	PIPER J2	7100402	PIPER PA18	7101826	PIPER PA28	7102807
NNATBAL752	6113310	OTHEXMIPLIST	8140304	PIPER J3	7100516	PIPER PA18	7101818	PIPER PA28	7102811
NNNAVAL N3N	6120202	OTHEXMIPLIST	8140102	PIPER J3	7100526	PIPER PA18	7101802	PIPER PA28	7102809
NNNAVIONNAVION	6150118	OTHEXMILTUB	4470905	PIPER J3	7100514	PIPER PA18	7101815	PIPER PA28	7102819
NNNAVIONNAVION	6150172	OTHEXMILTUB	4800708	PIPER J3	7100510	PIPER PA18	7101902	PIPER PA28	7102804
NNNAVIONNAVION	6150160	OTHEXMILTUB	4470904	PIPER J3	7100528	PIPER PA18	7101806	PIPER PA28	7102813
NNNAVIONNAVION	6150142	OTHEXMILTUB	4800803	PIPER J3	7100508	PIPER PA18	7101828	PIPER PA28	7102814
NNNAVIONNAVION	6150134	PALMERCLIPPR	9570785	PIPER J3	7100522	PIPER PA18	7101812	PIPER PA28	7102802
NNNAVIONNAVION	6150178	PARKS P1T	6770102	PIPER J3	710052T	PIPER PA18	7101820	PIPER PA28	7102815
NNNAVIONNAVION	6150106	PARMNTCABAIR	6750102	PIPER J3	7100501	PIPER PA18	7101816	PIPER PA28	7102816
NNNAVIONNAVION	6150108	PARTENP66	6780101	PIPER J3	7100506	PIPER PA18	7101804	PIPER PA28	7102803
NNNAVIONNAVION	6150166	PARTENP68	6780105	PIPER J3	7100550	PIPER PA18	7101904	PIPER PA28	7102818
NNNAVIONNAVION	6150136	PARTENP68	6780106	PIPER J3	7100520	PIPER PA18	7101830	PIPER PA28	7102817
NNNAVIONNAVION	6150162	PASPEDW1	6790102	PIPER J3	7100512	PIPER PA18	7101808	PIPER PA28	7102808
NNNAVIONNAVION	6150110	PDMLIRYLS	5740102	PIPER J3	7100552	PIPER PA18	7101838	PIPER PA28	7102830
NNNAVIONNAVION	6150148	PECOCKPJJC	4160204	PIPER J3	7100511	PIPER PA18	7101814	PIPER PA28	7102806
NNNAVIONNAVION	6150170	PERTH BIRD	6840122	PIPER J3	7100532	PIPER PA18	7101836	PIPER PA30	7103002
NNNAVIONNAVION	6150140	PERTH BIRD	6840132	PIPER J3	7100536	PIPER PA18	7101809	PIPER PA30	7103902
NNNAVIONNAVION	6150132	PERTH BIRD	6840126	PIPER J3	7100546	PIPER PA20	7102006	PIPER PA31	7103120
NNNAVIONNAVION	6150174	PHENTH10	6880102	PIPER J3	7100542	PIPER PA20	7102012	PIPER PA31	7103104
NNNELSONBB1	6200102	PIAGIOP136	6960104	PIPER J3	7100502	PIPER PA20	7102010	PIPER PA31	7103102
NNNICBEZ8G	6290202	PIAGIOP136	6960102	PIPER J3	7100519	PIPER PA20	7102004	PIPER PA31	7103111
NNNINOH YS11	63010416	PIAGIOP136	6960106	PIPER J3	7100518	PIPER PA20	7102002	PIPER PA31	7103110
NNNOORDNOC64	6330204	PIAGIOP180	6960204	PIPER J3	7101102	PIPER PA22	7102212	PIPER PA31	7103105
NNNORD 1101	6380108	PIASEHUP	6980302	PIPER J3	7101104	PIPER PA22	7102210	PIPER PA31T	7103127
NNNORD 3202	6383202	PIASEHUP	6980320	PIPER J4	71010604	PIPER PA22	7102214	PIPER PA31T	7103124
NNNORD SV4	6383006	PICARDA5	7001216	PIPER J4	7100614	PIPER PA22	7102202	PIPER PA31T	7103128
NNNORD SV4	8470102	PICARDAK6	7001218	PIPER J4	7100606	PIPER PA22	7102216	PIPER PA31T	7103126
NNNORTPT38	6458005	PIGMANREARN	7070302	PIPER J4	7100602	PIPER PA22	7102204	PIPER PA32	7103213
NNNORTST35	6480102	PIGMANREARN	7070104	PIPER J4	7100610	PIPER PA22	7102206	PIPER PA32	7103216
NNNORTST35	6480108	PIGMANREARN	7070308	PIPER J4	7100605	PIPER PA22	7102208	PIPER PA32	7103207
NNNORTST35	6480126	PILATSB4	7090104	PIPER J4	7100608	PIPER PA23	7102303	PIPER PA32	7103211
NNNORTST35	6480104	PILATSB4	7090103	PIPER J5	7100702	PIPER PA23	7102306	PIPER PA32	7103215
NNNORTST40	6480110	PILATSPC6	7090114	PIPER J5	7100708	PIPER PA23	7102310	PIPER PA32	7103220

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PIPER PA32	7103222	REIMS 172	7530210	SCBFLGSF25	3801325	SCWZERSG1	8050124	SKRSKYS58	8141804
PIPER PA32	7103212	REIMS 172	7530136	SCBFLGSF27	380135V	SCWZERSG1	8050146	SKRSKYS58	8141801
PIPER PA32	7103209	REIMS 172	7530139	SCBFLGSF28	380135X	SCWZERSG1	8050112	SKRSKYS58T	8141844
PIPER PA32	7103218	REIMS 172	7530204	SCBFLGSF34	3801351	SCWZERSG1	8050149	SKRSKYS58T	8141840
PIPER PA32	7103214	REIMS 172	7530206	SCBFLGUGVOG	3801381	SCWZERSG1	8050116	SKRSKYS58T	8141805
PIPER PA32	7103206	REIMS 172	7530209	SCHEMPDISCUS	38019VP	SCWZERSG1	8050114	SKRSKYS58T	8141807
PIPER PA34	7103406	REIMS 172	7530203	SCHEMPDISCUS	38019VN	SCWZERSG1	8050502	SKRSKYS58T	8141842
PIPER PA34	7103405	REIMS 172	7530207	SCHLER13	38015G5	SCWZERSG2	8050614	SKRSKYS58T	8141803
PIPER PA34	7103420	REIMS 337	7535726	SCHLERASK14	38015GW	SCWZERSG2	8051606	SKRSKYS61	8142103
PIPER PA36	7103620	REIMS 337	7535716	SCHLERASK21	38015GY	SCWZERSG2	8051604	SKRSKYS61	8142104
PIPER PA36	7103610	REPBLCP47	7570405	SCHLERASW12	38015HR	SCWZERSG2	8050210	SKRSKYS61	814210C
PIPER PA36	7103612	RHNFLLRW3	7600504	SCHLERASW15	38015H2	SCWZERSG2	8050610	SKRSKYS61	8141826
PIPER PA38	7103812	RKWELL500	7630410	SCHLERASW15	38015H2	SCWZERSG2	8050604	SKRSKYS61	8142107
PIPER PA42	7104202	RKWELL700	7630520	SCHLERASW17	3801507	SCWZERSG2	8050206	SKRSKYS61	8142101
PIPER PA42	7104212	RKWELLNA265	6402608	SCHLERASW19	3801505	SCWZERSG2	8051404	SKRSKYS61	8142102
PIPER PA42	7104225	RKWELLNA265	7630107	SCHLERASW19	3801508	SCWZERSG2	8050608	SKRSKYS62	8142202
PIPER PA44	7104404	RKWELLNA265	6402618	SCHLERASW20	3801506	SCWZERSG2	8050612	SKRSKYS64	8142620
PIPER PA44	7104402	RKWELLNA265	7630106	SCHLERASW20	3801503	SCWZERSG2	8050602	SKRSKYS64	8142604
PIPER PA46	7104605	RKWELLNA265	7630104	SCHLERII	3801581	SCWZERSG2	8050202	SKRSKYS70	8143000
PIPER T1040	7105101	RKWELLNA265	7630101	SCHLERK	3801551	SCWZERSGM2	8050301	SKRSKYS76	8143010
PIRTEROC185	7100102	RKWELLNA265	6402612	SCHLERK2K7	3801554	SCWZERTG3A	8050902	SKRSKYS76	8143007
PIRTEROC185	7140107	RKWELLNA265	7630108	SCHLERK8	3801567	SEMCO 30	8070504	SKRSKYS76	8143006
PIRTEROC185	7140189	RKWELLNA265	6402614	SCHLERK8	3801559	SEMCO CLINGER	8070802	SLINDS100	0140208
PITCANPA4	7180102	ROBSINR22	7640104	SCHLERK8	38019VL	SEMCO MARKV	8071802	SLINDS100	9550104
PITCANPA5	7180202	ROBSINR22	7640115	SCHLERK8	38019VK	SEMCO MODEL T	8071701	SLINDS100	0140202
PITCANPA6	7180302	ROBSINR22	7640102	SCHLERK8	3801568	SEMCO TC4	8071408	SLINDS100	9550102
PITCANPA7	7180402	ROBSINR22	7640110	SCHLERKA6	3801537	SEMCO TC4	8071409	SLINDSB	0144308
PITCANPA7	7180406	ROLSCHLS	3801250	SCHLERKA6	3801528	SEVEN	3410101	SLINDSB	0144306
POST A	7280102	ROLSCHLS	3801260	SCHLERKA6	3801530	SIoux 60	8250102	SLINDSB	4571008
PRATT PRG1	7300106	ROLSCHLS	3801206	SCHLERKA6	3801540	SIoux 90	8250106	SLNSBYKITE	8320102
PRATT PRG1	7300102	ROLSCHLS	3801211	SCHLERKA6	3801540	SIREN C30	8270302	SLNSBYT45	8320304
PROPJT200	0140302	ROLSCHLS	3801208	SCHLERKA6	3801535	SKRSKYS39	8140502	SLNSBYT49	8321008
PROPJT200	0140312	ROLSCHLS	3801208	SCHLERKA6	3801535	SKRSKYS39	8140504	SLNSBYT50	8320402
PROPJT200	0140314	ROOS 129	7680106	SCHLERKA6	3801525	SKRSKYS51	8141102	SLNSBYT51	8320602
PROPJT400	4560404	ROOS 1928	7680204	SCHWZHZ269	8059500	SKRSKYS52	8141306	SLNSBYT53	8321508
RAVEN MG1000	7483202	ROOS A1	7680104	SCHZOWMODEL B	0560221	SKRSKYS52	8141308	SLNSBYT59	8321510
RAVEN RX6	7480502	ROOS A1	7680102	SCUZERSG2	8050207	SKRSKYS55	8141605	SMITH 600	8360605
RAVEN S40	7480104	ROOS PT	7680312	SCWZERG164	3952704	SKRSKYS55	8141603	SMITH 600	8360602
RAVEN S50	7480204	ROSE A1	7710102	SCWZERSG1	8050153	SKRSKYS55	8141606	SMITH 600	8360606
RAVEN S50	05604XW	RYAN SCW	7830302	SCWZERSG1	8050104	SKRSKYS55	8141604	SMITH 600	1710602
RAVEN S55	7480402	RYAN ST3	7830504	SCWZERSG1	8050148	SKRSKYS55	8141602	SMITH 600	1710606
RAVEN S57	7480507	RYAN ST3	7830502	SCWZERSG1	8050147	SKRSKYS58	8141809	SMITH 600	8360604
RAVEN S60	7480610	RYAN STA	7830404	SCWZERSG1	8050151	SKRSKYS58	8141811	SMITH 600	8360608
RAVEN S60	7480606	RYAN STA	7830402	SCWZERSG1	8050106	SKRSKYS58	8141821	SNALS350	8680800
RAVEN S66	7480612	RYANARB	7840202	SCWZERSG1	8050118	SKRSKYS58	8141800	SNIAS 350	8680802
RAVEN S77	7480650	RYANARB	7840204	SCWZERSG1	8050122	SKRSKYS58	8141808	SNIAS 350	8680801
RAWDONT1	7500102	RYANARB	7840102	SCWZERSG1	8050110	SKRSKYS58	8141814	SNIAS 350	8680803
REIMS 150	7530132	SAAB SF340	7850100	SCWZERSG1	8050102	SKRSKYS58	8141839	SNIAS 350	8680804
REIMS 150	7530110	SAAB SF340	7860101	SCWZERSG1	6050108	SKRSKYS58	8141815	SNIAS AS332	8680808
REIMS 150	7530134	SCBFLGBERGFK	3801315	SCWZERSG1	8050120	SKRSKYS58	8141806	SNIAS AS332	8680809



8680511	STNSON10	8632104	STOLACUC1	8640202	TCRAFTBC	8850320	TMPSONNAVION	6150116
8680508	STNSON10	8632004	STOLAMRC3	3080204	TCRAFTBC	8850314	TMPSONNAVION	6150114
8680506	STNSON10	8632004	STOLAMRC3	3080206	TCRAFTBC	8850302	TOMCAT	2390101
8680612	STNSON10	8632102	STOLAMRC3	3080202	TCRAFTBC	8850323	TOMCAT	2390305
8680610	STNSON6000	8630904	STRMAN3	8560208	TCRAFTBC	8850306	TOMCAT	1181062
8680502	STNSONA	8630901	STRMAN3	8560208	TCRAFTBC	8850318	TOMCAT	1181061
5910304	STNSONJR	8630404	STRMAN4	8560302	TCRAFTBC	9230916	TOMCAT	1181069
8402838	STNSONJR	8630406	STRMAN4	8560306	TCRAFTBC	8850322	TOMCAT	2390204
8402842	STNSONJR	8630402	STRMAN6	8560402	TCRAFTBC	8850316	TOMCAT	2390304
8400131	STNSONL1	8630102	SUD CM170	3650101	TCRAFTBC	9230920	TOMCAT	1181061
8400125	STNSONL1	8630114	SUD GY80	8681006	TCRAFTBC	9230924	TOMCAT	2390202
8680696	STNSONL5	8630210	SUD SE210	9680206	TCRAFTBC	8850310	TOMCAT	2390301
8680695	STNSONL5	8630214	SUPAC 14	8730402	TCRAFTBC	8850304	TOMCAT	2390303
8680697	STNSONL5	8630204	SUPAC 14	8730404	TCRAFTBC	8850336	TOMCAT	2390302
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8430102	STNSONL5	8630202	SUPAC LA	8730208	TCRAFTBC	8850332	TRYTEK65	0190932
8430206	STNSONL5	8630206	SUPAC LA	8730204	TCRAFTBC	8850326	TRYTEK65	0190928
8430208	STNSONSM2	8630604	SUPAC LA	8730202	TCRAFTBC	8850346	TRYTEK65	0190406
8430210	STNSONSM2	8630602	SUPAC V	8730306	TCRAFTBC	8850356	TRYTEK65	0190920
38019VE	STNSONSM7	8630702	SUPAC V	8730302	TCRAFTBC	8850354	TRYTEK65	0190922
38019VC	STNSONSM7	8630704	SWALOWSWALOW	8760102	TCRAFTBC	8850350	TRYTEK65	0190926
3802002	STNSONSM8	8630802	SWALOWTP	8760202	TCRAFTBC	8850102	TRYTEK65	0190712
3801923	STNSONSR10	8631608	SWNGNSA226	8780122	TEAL TSCIA	8880102	TRYTEK65	0190716
3801925	STNSONSR10	8631602	SWNGNSA226	8780404	TEAL TSCIA	8960404	TRYTEKCF	0190202
38019VD	STNSONSR10	8631614	SWNGNSA226	8780405	TEMCO 11A	8890404	TRYTEKK	0190402
38019VG	STNSONSR10	8631604	SWNGNSA226	8780406	TEMCO 11A	8890402	TRYTEKK	0190204
38019VJ	STNSONSR10	8631620	SWNGNSA227	8780603	TEMCO T35	8890602	UNIPRO113	9250302
38019VF	STNSONSR10	8631616	SWNGNSA227	8780620	TEMCO T35	8890601	UNIPRO70	9250202
3801950	STNSONSR5	8631102	SWNGNSA227	8780610	TEMCO TT1	8890502	UNIPROD145	9250502
3801939	STNSONSR5	8631110	SWNGNSA26	8780102	TH55	4471002	UNIVACGC1	9230112
3801933	STNSONSR5	8631104	SWNGNSA26	8780112	THUNDRAK5	05604DP	UNIVACGC1	9230102
3801945	STNSONSR5	8631108	SZD 41	8821641	THUNDRAK5	05604UK	UNIVACGC1	9230104
3801920	STNSONSR5	8631112	SZD 45	8822002	THUNDRAK5	8970100	UNIVACGC1	9230106
3802050	STNSONSR6	8631204	SZD 48	8821648	THUNDRAK6	8970102	UNIVACGC1	9230110
3802051	STNSONSR6	8631202	TCRAFTK21	8850906	THUNDRAK7	8970120	UNIVACGC1	9230108
3802433	STNSONSR7	8631304	TCRAFTK	8850414	THUNDRAK7	8970105	UNIVAR108	9230404
8451012	STNSONSR7	8631306	TCRAFTK	8850414	THUNDRAK7	8970110	UNIVAR108	9230412
8451014	STNSONSR8	8631412	TCRAFTK	8850404	THUNDRAK7	8970106	UNIVAR108	9230418
8451016	STNSONSR8	8631404	TCRAFTK	8850408	THUNDRAK7	8970108	UNIVAR108	9230416
8480102	STNSONSR8	8631416	TCRAFTK	8850420	THUNDRAK7	8970107	UNIVAR108	923



## APPENDIX B

SDR AIRCRAFT GROUP NAME  
FAA MANUFACTURER/MODEL CODES

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SDR NAME	FAA CODE	SDR NAME	FAA CODE	SDR NAME	FAA CODE	SDR NAME	FAA CODE	SDR NAME	FAA CODE
UNIVAR415	0420202	WACO EGC	9600610	WACO YPF	9601606				
UNIVAR415	0420330	WACO GC7	9600608	WACO YPF	9601604				
UNIVAR415	0420334	WACO GXE	9600702	WACO YPF	9601608				
UNIVAR415	0420312	WACO INF	9600416	WACO YPF	9601602				
UNIVAR415	0420502	WACO JC	9600806	WACO ZGC	9600609				
UNIVAR415	0420318	WACO JC	9600802	WACO ZGC8	9600604				
UNIVAR415	0420402	WACO JYM	9601504	WESTLD30	9650160				
UNIVAR415	0420316	WACO KMF	9600418	WHITE D25	9670102				
UNIVAR415	0420336	WACO P	9600402	WING D1	9690302				
UNIVAR415	0420314	WACO P	9600302	WINDKR AC7	9720209				
UNIVAR415	0420702	WACO Q	9601210	WSK M18	9810102				
UNIVAR415	0420504	WACO Q	9600504	WTHRLY201	9630410				
UNIVAR415	0420320	WACO Q	9600408	WTHRLY201	9630408				
UNIVAR415	0420302	WACO QC6	9600644	WTHRLY201	9630406				
UNIVAR415	5872014	WACO QC6	9600646	WTHRLY201	9630404				
UNIVAR415	0420304	WACO QC6	9600642	WTHRLY620	9630604				
UNIVAR415	0420326	WACO QC6	9600648	WTHRLY620	9630602				
UNIVAR415	0420722	WACO QC6	9600648	ZENITHZ6	9950102				
UNIVAR415	0420322	WACO R	9600422	ZLIN 526	9970212				
UNIVAR415	0540102	WACO R	9600304	ZLIN 526	9970222				
UNIVAR415	5872018	WACO RE	9600902	ZLIN 526	9970206				
UNIVAR415	0420306	WACO RE	9600910						
UNIVAR415	0420328	WACO RPT	9600340						
VALENT17	9370100	WACO S3HD	9601102						
VARGA 2150	5940202	WACO U	9600404						
VARGA 2150	5940204	WACO U	9600510						
VARGA 2150	9350102	WACO U	9600306						
VARGA 2180	9350104	WACO U	9600508						
VARGA 2180	9350105	WACO U	9600405						
VICKER745	9470404	WACO DC	9600662						
VICKER745	9470605	WACO DC	9600664						
VICKER745	9470402	WACO DKC	9600822						
VICKER745	9470204	WACO DKC	9600808						
VIKINGB	9520104	WACO DKC	9600810						
VIKINGB	9520102	WACO DKC	9600824						
VIZOLAA21	1870101	WACO DKC	9600826						
VLGTBWSAGITA	0550201	WACO DKC	9600830						
VOUGHTF4U	2152608	WACO DMF	9600410						
VOUGHTF4U	2152610	WACO UPF7	9601304						
VOUGHTF4U	2152616	WACO UPF7	9601302						
WACO 9	9600102	WACO YK	9600818						
WACO AGC8	9600602	WACO YK	9600834						
WACO ASO	9601202	WACO YK	9600816						
WACO ATO	9601212	WACO YK	9600832						
WACO AVN8	9601402	WACO YK	9600835						
WACO BSO	9601204	WACO YK	9600838						
WACO CRG	9601001	WACO YMF	9600412						
WACO CSO	9601206	WACO YOC	9600624						
WACO CTO	9601214	WACO YOC	9600622						
WACO DSO	9601208	WACO YPF	9601610						

## APPENDIX C

SDR ENGINE GROUP NAME  
FAA MANUFACTURER/MODEL CODES

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SDR NAME	FAA CODE	SDR NAME	FAA CODE	SDR NAME	FAA CODE	SDR NAME	FAA CODE
ALLSN 250B	03003	FRNKLN4AC199	27008	LYC 0360	41514	PWA T34	52055
ALLSN 250B	03012	FRNKLN4AC199	27009	LYC 0360	41515	ROTAX 277	55555
ALLSN 250C	03002	FRNKLN4AC199	27010	LYC 0435	41516	ROYCEAVON	54517
ALLSN 250C	03011	FRNKLN6A4150	27024	LYC 0435	41523	ROYCEDART	54503
ALLSN 250C	03013	FRNKLN6A4150	27025	LYC 0480	41527	ROYCEDART	54504
ALLSN 501D	03004	FRNKLN6A4200	27027	LYC 0480	41529	ROYCEDART	54506
ALLSN 501D	03005	FRNKLN6A8215	27030	LYC 0540	41532	ROYCEDART	54507
ALLSN 501D	03006	FRNKLN6AG4	27026	LYC 0540	41533	ROYCEDART	54508
AMES TRS	04501	FRNKLN6AV335	27020	LYC 0540	41534	ROYCEDART	54509
AMTR 430	19050	FRNKLN6AV335	27040	LYC 0541	41536	ROYCEDART	54513
AMTR AMTR	99999	FRNKLN6AV350	27043	LYC 0541	41539	ROYCEDART	54522
AMTR KT100	80000	FRNKLN6V4	27033	LYC 0720	41546	ROYCEGIPSY	20005
AMTRCMCULH	42501	FRNKLN6V6245	27036	LYC R680	41540	ROYCEGIPSY	20006
ARSRCHTPE331	01502	GARTTATF3	29002	LYC T53	41549	ROYCEGIPSY	20007
ARSRCHTSE331	01505	GARTTTFE731	01518	LYC T55	41555	ROYCEGRIFF	54501
BRSDLYGIPSY	20003	GARTTTPE331	01514	MNASCO4	43504	ROYCEOLMPS	54570
CONT 6285	17038	GE CF34	30015	ONAN 18HP	47850	ROYCERB211	54555
CONT 975	17037	GE CF6	30018	PKARDV1650	49001	ROYCESPEY	54519
CONT A40	17001	GE CF6	30025	PIGMAN5	37002	ROYCESPEY	54521
CONT A50	17002	GE CF700	30010	PORSCH6784	51001	ROYCESPEY	54523
CONT A65	17003	GE CJ610	30002	PWA JFTD12	52047	ROYCEVIPER	54550
CONT A75	17005	GE CJ610	30006	PWA JT12	52042	ROYCEVIPER	54551
CONT A80	17006	GE CJ805	30004	PWA JT15	52060	ROYCEVIPER	54552
CONT C125	17011	GE CJ805F	30005	PWA JT15	52112	TMECA ARTST2	60030
CONT C145	17012	GE CT58	30008	PWA JT3C	52036	TMECA ARTST3	60002
CONT C85	17008	GE CT58	30011	PWA JT3D	52039	TMECA ARTST3	60003
CONT C90	17009	GE CT7TP	30030	PWA JT4	52037	TMECA AST14	60014
CONT E165	17013	GE TC7TS	30029	PWA JT8	52044	TMECA AST18	60020
CONT E185	17014	GLADENB5	37501	PWA JT8	52046	TMECA AST2	60005
CONT E225	17015	GLADENR5	37503	PWA JT8	52048	TMECA AST2T	60006
CONT O200	17020	GLADENR5	37504	PWA JT8	52049	TMECA BASTAN	60009
CONT O300	17022	GULF R670	31701	PWA JT8	52051	TMECA MARBOR	60040
CONT O346	17033	JACOBPR755	35006	PWA JT8	52053	TMECA MARBOR	60004
CONT O360	17025	JACOBPR755	35007	PWA JT9	52050	TMECA MARBOR	60004
CONT O470	17026	JACOBPR755	35008	PWA JT9	52054	TMECA TURMO4	60008
CONT O520	17032	JACOBPR755	35003	PWA PT6	52043	WARNER165	64504
CONT O520	17040	JACOBPR755	35005	PWA PT6	61501	WARNER185	64505
CONT O526	17030	LIMBAH1700	38602	PWA PT6	61504	WARNER50	64503
CONT R670	17016	LYC AL5512	41581	PWA PT6	61506	WRIGHTJ5	67007
DHAXXGIPSY	20004	LYC ALF502	41580	PWA PT6T	52045	WRIGHTOX5	67002
ENMA GIV	22000	LYC LTP101	41565	PWA PT6T	61502	WRIGHTR1300	67060
FCD 6410	26002	LYC LTP101	41560	PWA R1340	52016	WRIGHTR1820	67020
FCD 6440	26003	LYC O145	41501	PWA R1690	52001	WRIGHTR2600	67050
FRNKLN4A235	27011	LYC O145	41502	PWA R1830	52020	WRIGHTR3350	67037
FRNKLN4AC150	27002	LYC O145	41503	PWA R2000	52023	WRIGHTR3350	67038
FRNKLN4AC150	27003	LYC O235	41505	PWA R2800	52026	WRIGHTR3350	67040
FRNKLN4AC150	27004	LYC O290	41506	PWA R4360	52027	WRIGHTR760	67009
FRNKLN4AC171	27005	LYC O320	41508	PWA R985	52006	WRIGHTR760	67010
FRNKLN4AC176	27006	LYC O320	41509	PWA R985	52007	WRIGHTR760	67011
FRNKLN4AC176	27007	LYC O340	41510	PWA R985	52008	WRIGHTR975	67012

# APPENDIX C

## SDR ENGINE GROUP NAME FAA MANUFACTURER/MODEL CODES

SDR NAME	FAA CODE
WRIGHTR975	67015
WSK PZL	67203
WSK PZL	67204
XENOAHG72	72000

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SDR NAME	FAA CODE
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SDR NAME	FAA CODE
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## APPENDIX D

### COMMON ACRONYMS

ADF	-	Automatic Direction Finder
CG	-	Capability Groups
DME	-	Distance Measuring Equipment
EFIS	-	Electronic Flight Information Systems
FAA	-	Federal Aviation Administration
FAR	-	Federal Aviation Regulations
GA	-	General Aviation
GAAA	-	General Aviation Activity and Avionics
HSI	-	Horizontal Situation Indicators
IFR	-	Instrument Flight Rules
ILS	-	Instrument Landing System
IMC	-	Instrument Meteorological Conditions
LRNAV	-	Long Range Navigation Equipment
MLS	-	Microwave Landing System
MSL	-	Mean Sea Level
NAS	-	National Airspace System
RNAV	-	Area Navigation Equipment
PAR	-	Precision Approach Equipment
SDR	-	Service Difficulty Reporting
SFAR-38	-	Special Federal Aviation Regulation 38
TCA	-	Traffic Control Airport or Tower Controlled Airport
TCAS	-	Traffic Alert and Collision Avoidance System
VFR	-	Visual Flight Rules

VHF - Very High Frequency  
VMC - Visual Meteorological Conditions  
VOR - Very High Frequency Omni-directional  
Radio Range

## GLOSSARY

Active Aircraft--All legally registered civil aircraft which flew one or more hours.

Aerial Application--See Primary Use.

Aerial Observation--See Primary Use.

Air Carriers--The commercial system of air transportation consisting of the certificated air carriers, air taxis (including commuters), supplemental air carriers, commercial operators of large aircraft, and air travel clubs.

Aircraft Type--A term used in this publication in grouping aircraft by basic configuration: fixed wing, rotorcraft, glider, dirigible, and balloon.

Air Taxi--See Primary Use.

Altitude Encoding--(Automatic Altitude Reporting)--An aircraft altitude transmitted via the Mode C transponder feature that is visually displayed in 100 feet increments on the ground radar scope having readout capability.

Area Navigation (RNAV)--A method of using navigation instruments that allows pilots flexibility to fly direct routes between waypoints or offset from published or established routes/airways at specified distance and direction.

Automatic Direction Finder (ADF)--An aircraft radio navigation system which senses and indicates the direction to a nondirectional radio beacon ground transmitter. Direction is indicated to the pilot as a magnetic bearing or as a relative bearing to the longitudinal axis of the aircraft.

Automatic Pilots--The roll, pitch, and yaw axis of an aircraft can be controlled by use of an automatic pilot. Information from VOR, ILS, MLS, and other navigation aids can be coupled to the automatic pilot for en route and approach flights.

Business Transportation--See Primary Use.

Commuter Air Carrier--See Primary Use.

Distance Measuring Equipment (DME)--Airborne and ground equipment used to measure, in nautical miles, the slant range distance of an aircraft from the DME navigational aid.

Executive/Corporate Transportation--See Primary Use.

General Aviation--That portion of civil aviation which encompasses all facets of aviation except air carriers.

Glide Slope--See Instrument Landing System.

Instructional Flying--See Primary Use.

Instrument Flight Rules (IFR)--Rules governing the procedures for conducting instrument flight. Also a term used by pilots and controllers to indicate type of flight plan.

Instrument Landing System (ILS)--A precision instrument approach system which normally consists of the following electronic and visual aids:

- o Localizer--Provides course guidance to the runway.
- o Glide Slope--Provides vertical guidance during approach.
- o Marker Beacon--Provides aural and/or visual identification of a specific position along an instrument approach landing.

Localizer--See Instrument Landing System.

Long Range Navigation (LRNAV)--A method of navigation that permits navigation over long distances. This is in contrast to the relatively short range navigation provided by the VOR system.

Marker Beacon--See Instrument Landing System.

Microwave Landing System (MLS)--An instrument landing system operating in the microwave spectrum which provides lateral and vertical guidance to aircraft having compatible avionics equipment.

Other--See Primary Use.

Other Work Use--See Primary Use.

Personal/Recreation Flying--See Primary Use.

Primary Use--The use category in which an aircraft flew the most hours. The eleven use categories are defined below:

- o Aerial Application--Agriculture, health, forestry, cloud seeding, firefighting, insect control.
- o Aerial Observation--Aerial mapping/photography, survey, patrol, fish spotting, search and rescue, hunting, highway traffic advisory, sightseeing (not FAR Part 135).
- o Air Taxi--FAR Part 135 passenger and cargo operations excluding commuter air carrier.
- o Business Transportation--Individual use of an aircraft for business transportation.
- o Commuter Air Carrier--Performs, under FAR Part 135, at least five scheduled round trips per week or carries mail.

- o **Executive/Corporate Transportation**--Company flying with a professional crew.
- o **Instructional**--Flying under the supervision of a flight instructor (excludes proficiency flying).
- o **Other**--Experimentation, R&D, testing, demonstrations, government, air shows, air racing, etc.
- o **Other Work Use**--Construction work (not FAR Part 135), helicopter hoist, parachuting, aerial advertising, towing gliders, etc.
- o **Personal/Recreation**--Flying for personal reasons (excludes business transportation).
- o **Other**--Any other use of an aircraft not included above. (Example: experimentation, R&D, testing, demonstration, government).

**Radar Altimeter**--Aircraft instrument that makes use of the reflection of radio waves from the ground to determine the height of the aircraft above the surface.

**Registered Aircraft**--Aircraft registered with the Federal Aviation Administration.

**RNAV**--See Area Navigation.

**Transponder**--The airborne radar beacon receiver/transmitter portion of the Air Traffic Control Beacon System that automatically receives radio signals from interrogators on the ground and selectively replaces with specific reply pulse-on-pulse group only those interrogations being received on the mode to which it is set to respond. Each aircraft transponder is capable of replying to 4,096 codes as selected by the pilot. Provides the air traffic controller positive location and, in some cases, altitude information.

**VFR Flight**--Flight conducted in accordance with Visual Flight Rules.

**VHF Communications**--Provides radio voice communications between aircraft and ground stations, also between aircraft. Very High Frequency (VHF) is limited in angle (line of sight) and usually used for air traffic communications.

**VOR**--Very high frequency omnidirectional radio range. Used as the basis for navigation in the National Airspace System.

**Weather Radar**--Provides the flight crew with visual display of weather that could contain turbulence. The system's primary function is to assist in turbulence avoidance, although most airborne radar systems are also capable of terrain mapping.